



## Second Five-Year Review Report

for  
Sauk County Landfill  
City of Excelsior  
Sauk County, Wisconsin

August, 2005

**PREPARED BY:**

**U. S. EPA - REGION 5**

Approved by:

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## **List of Acronyms**

ARAR	Applicable or Relevant and Appropriate Requirement
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
EPA	United States Environmental Protection Agency
FSR	Final Site Remedy
HRL	Health Risk Limit
GCL	Geosynthetic Clay Liner
GWOU	Groundwater Operable Unit
MCL	Maximum Contaminant Level
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NOC	Notice of Compliance
O & M	Operation and Maintenance
PAH	Polyaromatic Hydrocarbon
PCBs	Polychlorinated Biphenyl
PCOR	Preliminary Close Out Report
PRP	Potentially Responsible Party
PSFD	Pilot Scale Field Demonstration
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act

RD	Remedial Design
RAO	Remedial Action Objective
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SCOU	Source Control Operable Unit
VOC	Volatile Organic Compounds

## **Executive Summary**

The remedy for the Sauk County Landfill Site, Excelsior, Wisconsin included construction of a gas extraction system, continued monitoring of the groundwater, regrading of the landfill, fencing the landfill, deed restriction, future maintenance of the cap, a contingency that requires a composite landfill cover system, and groundwater remedy for no further action.

The Site achieved construction completion with the signing of the Preliminary Close Out Report on September 1, 1995. The trigger for this five-year review was the actual completion of the first Five Year Review on May 19, 2000.

The source control ROD signed on March 31, 1994 contained a contingency that required construction of a plastic membrane cover system over the landfill should groundwater quality not improve. A review of the data indicates that groundwater quality downgradient of the landfill has improved and there is no need to construct a membrane cover system over the landfill. All groundwater monitoring completed at the site from 1999 through 2004 includes an evaluation relative to compliance with NR140, Wisconsin Administrative Code standard for groundwater quality.

The assessment of this Five-Year Review found that the remedy was constructed in accordance with the requirements of the Record of Decisions (RODs). The remedy is functioning as designed and is protective of human health and the environment in the short-term.

## Five-Year Review Summary Form

### SITE IDENTIFICATION

**Site name (from WasteLAN):** Sauk County Landfill

**EPA ID (from WasteLAN):** WID980610141

**Region:** 5

**State:** WI

**City/County:** Sauk County

### SITE STATUS

**NPL status:** ☒ Final ☐ Deleted ☐ Other (specify) \_\_\_\_\_

**Remediation status** (choose all that apply): ☐ Under Construction ☐ Operating ☒ Complete

**Multiple OUs?\*** YES ☒ NO

**Construction completion date:** 09/01/95

**Has site been put into reuse?** ☐ YES ☒ NO

### REVIEW STATUS

**Lead agency:** EPA ☒ State ☐ Tribe ☐ Other Federal Agency \_\_\_\_\_

**Author name:** Gladys Beard

**Author title:** NPL State Deletion Process Manager

**Author affiliation:** U. S. EPA, Region 5

**Review period:\*\*** 03/30/2005 to 05/15/2005

**Date(s) of site inspection:** 05/05/2005

**Type of review:**

☒ Post-SARA ☐ Pre-SARA ☐ NPL-Removal only  
☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead  
☐ Regional Discretion

**Review number:** ☐ 1 (first) ☒ 2 (second) ☐ 3 (third) ☐ Other (specify) \_\_\_\_\_

**Triggering action:**

☐ Actual RA Onsite Construction at OU # \_\_\_\_\_

☐ Actual RA Start at OU# \_\_\_\_\_

☐ Construction Completion

☒ Previous Five-Year Review Report

☐ Other (specify) \_\_\_\_\_

**Triggering action date (from WasteLAN):** 05/19/2000

**Due date (five years after triggering action date):** 05/19/2005

\* ["OU" refers to operable unit.]

\*\* [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

## **FIVE-YEAR REVIEW SUMMARY FORM, con't**

### **Issues:**

One small settlement area (approximately 100 square feet) is present on the east side of the landfill. This area needs re-grading so that the water flows toward the side wall and off the landfill surface.

Institutional controls are in place, but needed evidence that no other encumbrances on the property conflict with the deed restrictions.

### **Recommendation and Follow-up Actions:**

Sauk County must continue to implement their current groundwater sampling plan for private wells and monitoring wells, must maintain the landfill cap and gas extraction system. Re-grade the small settlement area on the east side of the landfill.

Sauk County must provide evidence that no other encumbrances on the property conflict with the deed restrictions within 6 months from the date of this five-year review.

### **Protectiveness Statement(s):**

All immediate threats at the site have been addressed, and the remedy is protective in the short-term of human health and the environment.

### **Long-Term Protectiveness:**

Long-term protectiveness at the Sauk County Landfill Superfund site (the Site) will be achieved by continuing the long-term monitoring of the ground water system and by implementation of the institutional controls and IC monitoring plan. Long-term groundwater monitoring has demonstrated that the concentrations of the chemicals of concern have declined. Long-term trends show significant and adequate improvements in groundwater quality.

### **Other Comments:**

None.

**Sauk County Landfill  
Excelsior, Wisconsin  
Second Five-Year Review Report**

## **I. Introduction**

The purpose of the five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in Five-Year Review reports. In addition, Five-Year Review reports identify issues found during the review, if any, and identify recommendations to address them.

The Agency is preparing this Five-Year Review report pursuant to CERCLA §121 and the National Contingency Plan (NCP). CERCLA §121 states:

*If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgement of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

The Agency interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) states:

*If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

The Wisconsin Department of Natural Resources (WDNR) and the United States Environmental Protection Agency (EPA), Region 5, conducted the Five-Year Review of the remedy implemented at the Site. This review was conducted by the Project Managers for the entire site from March 2005 through May 2005. This report documents the results of the review.

This is the second five-year review for the Site. The triggering action for this Five-Year Review is the completion of the first Five Year Review on May 19, 2000. The Five-Year Review is required due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure.

## II. Site Chronology

**Table 1: Chronology of Site Events**

Event	Date
Removal Assessment	08/07/91
Proposal to the NPL	06/24/88
NPL listing	10/04/89
PRP Search	06/29/87
RI/FS Start OU1	03/31/94
RI/FS complete OU2	01/23/95
ROD signature - Source Control OU1	03/31/94
ROD signature - Groundwater OU2	09/28/95
Remedial design start	08/02/94
Remedial Action complete	01/18/95
Preliminary Close Out Report	09/01/95
Previous five-year review	05/19/00

### **III. Background**

#### **Physical Characteristics**

The Sauk County Landfill was operated as a landfill from 1973 to 1983 by Sauk County. Throughout its operational history, the site accepted municipal, commercial, and industrial wastes. Landfilling operations at the site ceased in 1983. An estimated 750,000 cubic yards of wastes are in the landfill.

#### **Land and Resource Use**

The Sauk County Landfill is located in the northeastern part of the county between Reedburg and Baraboo, south of Hwy 33, (Figure 1, Figure 2). The landfill is 14 acres in size and is part of a 320 acre parcel containing both the closed and active landfills in the Southeast 1/4 of Section 15, Township 12 North, Range 5 East, Town of Excelsior, Sauk County, Wisconsin.

Residents living near the landfill created the Evergreen Property owners Association. On November 11, 1992 the Property Owners Association organized a meeting attended by WDNR to answer questions from residents living near the landfill.

#### **History of Contamination**

A Remedial Investigation (RI) was conducted under contract between Sauk County and the WDNR to characterize contaminant migration pathways and to evaluate the nature, extent, and magnitude of contaminant migration along those pathways for the former Sauk County Landfill in the Town of Excelsior, Wisconsin.

Fifteen VOCs were detected in the samples collected from the leachate representative wells.

#### **Initial Response**

On August 2, 1993, a Focused Feasibility Study was completed for the source control at the Site. Fifteen VOCs were detected in the samples collected from the leachate representative wells. Five semi-volatile compounds exceed the PALs. Five inorganic compounds were detected at levels that exceed standards in the leachate representative samples.

#### **Basis for Taking Action**

#### **Contaminants**

Hazardous substances that have been released at the Site in each media included:



**Soil and Groundwater**

Acetone	Benzene	Chlorobenzene
Chloroethane	1,2-Dichlorobenzene	1,4-Dichlorobenzene
1,1-Dichloroethane	1,2-Dichloroethane	cis-1,2-Dichloroethene
1,2-Dichloropropane	Ethylbenzene	Isopropylbenzene
Methly-t-butyl ether	Naphthalene	p-isopropyltoluene
Tetrachloroethene	Tetrahydrofuran	Toluene
1,1,1-Trichloroethane	Trichloroethene	1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene	Vinyl Chloride	Xylenes

## **IV. Remedial Actions**

### **Remedy Selection**

#### **SOURCE CONTROL**

Source control and groundwater Records of Decision (RODs) were completed for this site. The source control ROD was signed on March 31, 1994, and the specific components of the source control remedy include:

- Continued monitoring of the groundwater at on-site groundwater monitoring wells and offsite private wells
- regrading of the landfill surface to promote drainage off of the landfill cover
- fencing the landfill
- installation of a gas extraction system to efficiently collect and combust landfill gases
- placing a deed restriction on the property to prohibit the disturbance of the surface of the landfill cap in the future
- future maintenance of the landfill cap to prevent erosion and differential settlement
- a contingency which requires a composite landfill cover system if groundwater quality preventive action limits are not achieved in the future

#### **GROUNDWATER**

The groundwater ROD was signed on August 19, 1995, and the selected remedy for the groundwater unit includes the following:

- Continued monitoring of the groundwater at 12 on-site groundwater monitoring wells and 6 off-site private wells

### **Remedy Implementation**

#### **Source Control**

Sauk County began construction of the cap upgrade during the summer of 1994. It consisted of adding material to regrade the cap of the landfill, and eliminating erosion gullies and leveling the surface to promote drainage. The active gas collection system was installed at the same time as the cap upgrade. The system consists of 15 extraction wells located in two rows in a north-south orientation in the landfill. The collected gas was sent via subsurface pipe for flaring. Condensate from the gas system was treated as leachate

#### **Groundwater**

The original groundwater monitoring plan prepared after the ROD included 12 monitoring wells

(Figure 2-2; Table 3-1). Wells were selected to characterize variation in contaminant concentrations near the landfill, at the center of the contaminant plume, and also near the leading edge of contamination as defined with existing monitor wells. Three wells selected for sampling characterize the source contamination in the shallow aquifer. The shallow aquifer near the landfill consists of both unconsolidated deposits and sandstone of the Mazomanie Formation. Two deeper, near source wells were also selected to evaluate trends with depth near the landfill. One well, located to the west of the landfill, was selected to characterize variations in contaminant concentrations in the deeper sandstone of the Wonewoc Formation with time. A well, located to the east of the landfill, was selected to monitor for potential downward vertical migration of contaminants near the landfill. A well is screened in the low permeability Lone Rock Formation, which consists of primarily shale. One well was selected to characterize the central area of the plume. This well is screened in the Lone Rock Formation and historically has been sampled for VOCs more frequently than most of the other monitoring wells at the site. Continued sampling at this location provides additional data for calculating contaminant reduction rates.

To characterize the leading edge of the contaminant plume, four well nest locations were selected for sampling. Two wells, completed in the Wonewoc Formation were selected for the northwestern extent of the deep plume. Two wells completed in the unconsolidated/Mazomanie Formation and the Wonewoc Formation, respectively, were selected to monitor the leading edge of the plume in the shallow aquifer to the west of the site and the west central area of the plume in the deeper aquifer. A well was selected to monitor for the presence of VOCs immediately to the southwest of the landfill in the Wonewoc Formation. No VOCs had been detected in samples from the well during the RI, and the purpose of including this well in the sampling was to confirm that the extent of groundwater contamination immediately southwest of the landfill was not changing. One well was selected to monitor VOC concentrations in the Wonewoc at the southwest property boundary. Sample results from all these wells provide the information required to determine whether contaminants at levels of concern which may be migrating off the County property.

### **System Operation/Operation and Maintenance**

The Source Control Record of Decision requires that the existing cap be maintained to encourage runoff of precipitation from the cap, limit percolation of precipitation through the cap, and seal the waste from the atmosphere as best as possible to ensure optimal effectiveness of the gas extraction system. A visual inspection of the cap is completed on a regular basis to determine that these objectives are met. The vegetation is mowed once per year to remove woody growth that may damage the soil cap. If erosion gullies develop the County re-grades and re-seeds the affected area.

Nine monitoring wells and nine private wells are sampled on a regular basis by the County. Monitoring wells are sampled semi-annually as are most private wells. Two private wells are sampled on a quarterly basis. The wells are sampled for volatile organic compounds (VOCs) and the results are shared with homeowners shortly after the data becomes available from the lab. Some homes do detect a couple of VOCs but the concentrations are below state groundwater quality drinking water standards. No private well has detected an exceedance of any drinking water standard

within the 5 year period addressed by this report.

The landfill has an active gas extraction system. Vacuum pressures at gas extraction wells are monitored and adjusted to maximize gas extraction, and minimize oxygen intrusion. The landfill gas is collected and combined with gas captured at the other Sauk County landfill located approximately two hundred yards north of the Superfund landfill. Gas from both landfills is combined and is combusted to generate electricity using micro turbines.

The Sauk County landfill is fenced and access is restricted. Sauk County maintains a well established vegetative cap on the landfill. The source control ROD signed on March 31, 1994 required that a restriction be placed on the deed requiring Sauk County to maintain the landfill cover system, and to restrict future use of the landfill to activities that don't destroy the cap. This restriction was filed with the Sauk County Register of Deeds on January 26, 1996.

Table 2 - Annual System Operations/O.M. Costs

<b>Dates</b>		<b>Total Cost</b>
<b>From</b>	<b>to</b>	
1/1/2000	12/30/2000	\$ 23,816
1/1/2001	12/30/2001	\$ 55,385
1/1/2002	12/30/2002	\$ 66,953
1/1/2003	12/30/2003	\$ 35,503
1/1/2004	12/30/2004	\$ 30,158

V. Progress Since the Last Five-Year Review

The remedy continues to function as designed. The operation of the landfill gas extraction system continues to reduce the methane and VOCs generated and existing within the fill. Continued operation of the extraction system as specified in the remedy will assist in meeting the goal to protect human health and the environment. Continued semi-annual groundwater monitoring is planned.

VI. Five-Year Review Process

**Administrative Components**

This Five-Year Review Report was written and completed by EPA and based on the technical review of the Site by members of the Wisconsin DNR and EPA staff. This Five-Year Review Report was written by Gladys Beard of EPA.

The review team established the review schedule whose components included:

- Community Involvement;
- Document Review;
- Data Review;
- Site Inspection;
- Local Interviews; and
- Five-Year Review Report Development and Review.

### **Community Involvement**

A notice was published in the Baraboo News Republic, the Reedsburg Independent, the Home News and the Sauk Prairie Star newspapers during the week of May 2, 2005 by WDNR stating that Sauk County had completed a Five Year Review for the Superfund landfill. The notice was made to the public announcing the Five-Year Review Report and providing a summary of Five-Year Review findings, protectiveness of the remedy, and advising the community where a copy of the review can be found.

### **Document Review**

This Five-Year Review consisted of a review of relevant documents including O&M records, monitoring data, and the last Five-Year Review Report. All cleanup standards in the ROD were reviewed and the Five Year Summary Report date 1999-2004 for Closed Sauk County Landfill.

### **Data Review**

#### Groundwater Monitoring

During the 1999 to 2004 monitoring period, groundwater elevations were measured in all wells on ten occasions, and groundwater samples were collected from select monitoring wells and private wells for analysis of VOCs during ten separate events.

Groundwater elevations were measured at the monitoring wells near both the closed and operating landfills in May and October each year. Groundwater elevations have significantly decreased from the levels measured in 1992 and 1993 (Figure 2-3). Water level data is summarized on Table 4-1 and groundwater elevations from December 1993 are plotted on Chart 4-30. The water table elevations were about five feet lower in spring 2004 (Figure 4-2) than in fall 2004 (Figure 4-1). No significant changes in flow direction are notable from those presented in the RI.

Between December 1993 and May 1995, the average groundwater elevation decrease in the four

wells used to determine the upper intermediate potentiometric surface was about six feet. Since that time, the potentiometric surface in these wells has fluctuated between two and three feet over time. The upper intermediate potentiometric surface in December 1993 is shown on Figure 2-4, in spring 2004 on Figure 4-4, and fall 2004 on Figure 4-3. The upper intermediate potentiometric surface was generally one to two feet lower than the previous sampling event in May 2004, but rebounded approximately five feet to more typical levels in the fall. The direction of flow has remained about the same through this time span.

The lower intermediate potentiometric surface generally decreased about six feet between December 1993 and May 1995. Since that time, the potentiometric surface has generally varied by about two feet (both upward and downward) from the May 1995 elevations. The lower intermediate potentiometric surface was generally one to two feet lower than the previous sampling event in May 2004, but rebounded approximately five feet to more typical levels in the fall. This effect is similar to that observed in the upper intermediate aquifer. The lower intermediate potentiometric surface in December 1993 is shown on Figure 2-5, in spring 2004 on Figure 4-6 and fall 2004 on Figure 4-5. The direction of flow has remained fairly consistent throughout the ten-year period.

As with the high potentiometric surfaces, the deep potentiometric surface decreased about six feet between December 1993 and May 1995, and has generally varied by one to two feet since that time. The deep potentiometric surface was generally one to two feet lower than the previous sampling event in May 2004, but rebounded approximately five feet to more typical levels in the fall. The deep potentiometric surface in December 1993 is portrayed on Figure 2-6, in spring 2004 on Figure 4-8 and fall 2004 on Figure 4-7. The direction of groundwater flow remained the same over this time period.

The direction of groundwater flow has remained essentially unchanged in each of the hydrogeologic units since 1993. For each of the units, the potentiometric surface generally rises and falls 1 to 5 feet between measurements. These surfaces are usually higher during the spring than during the fall, but the opposite was true in 2004, with the fall 2004 elevations about 5 feet higher than in the spring.

Eleven private wells are sampled for VOCs at the Sauk County landfill. VOCs were not detected in nine of these wells in 2004. In the two wells where VOCs were detected, their concentrations were well below their Enforcement Standard (ESs), which are the drinking water standards for private wells in the State of Wisconsin. Groundwater flows south and west of the Sauk County Landfill and does contain VOCs. The VOCs are present, but at concentrations below drinking water standards. The WDNR has a goal that all private water supply wells in the state provide water that is contaminant free. So even though the groundwater downgradient of the landfill is safe for potable purposes, the WDNR has created a Special Casing Area. NR 812, is. Adm. Code gives the WDNR authority to create a Special Casing Area for locations that may contain groundwater contamination. WDNR created a Special Casing Area that encompasses the area from south of the landfill on Hogsback Road, extending west to Evergreen Road. Prior to drilling in this Special Casing Area, drillers must contact the WDNR for well construction details such as well depth and length of casing. So, in addition to deed restrictions prohibiting damage to the landfill cap, the special casing area serves as an addition layer of protection and is enforceable by the State.

Laboratory analysis results for VOCs from the monitoring well samples collected in May and October 2004 are included in Appendix C.1. The Source Control ROD for this landfill, written by the Wisconsin Department of Natural Resources (WDNR), contains a contingency plan that a membrane cap was to be placed on the landfill if NR 140, Wis. Adm Code Preventive Action Limits (PALs) aren't achieved. The WDNR reviewed the groundwater data for this site in their approval of the 5-Year Report. The WDNR has concluded that groundwater quality at this site is dramatically improving, far better than many Superfund sites. The groundwater quality is not in compliance with NR 140 PALs, but does comply with NR 140 Enforcement Standards (ES), which are at least as stringent of the Federal Safe Drinking Water Act Standards. The WDNR reviews compliance with NR 140 in remedial action cases to be with the ES, not the PAL. The WDNR has determined there is no reason to implement the contingency noted in the source control ROD since groundwater currently meets the ES Standards. There is continued progress towards the PALs.

### **Site Inspection**

A site inspection was conducted on April 5, 2005. The vegetation was in good shape and there were no areas of methane stress. One small settlement area (approximately 100 square feet) was present on the east side of the landfill. The landfill operator indicated this area will be re-graded so that the water flows toward the side wall and off the landfill surface. No other problems were noted during the site inspection and the County has done an excellent job of maintaining the site.

### **Interviews**

In processing this report, U. S. EPA interviewed the State of Wisconsin DNR staff to obtain information for this report. None of the Wisconsin DNR staff was able to identify any concerns regarding the Site and there had not been any emergency responses at the Site.

## **VII. Technical Assessment**

### **Question A: Is the remedy functioning as intended by the decision documents?**

Yes, the review of documents, ARARS, risk assumptions, and the results of the site inspection indicates that the remedy is functioning as intended by the ROD. The stabilization and capping of the contaminated landfill have achieved the remedial objectives to minimize contaminants to groundwater and surface water and prevent direct contact with, or ingestion of, contaminants in soil. A deed restriction was filed with the Sauk County Register of Deeds on January 26, 1996 which serves to protect the cap.

Operation and maintenance (O & M.) of the cap have been and continues to be effective. O & M annual costs are consistent with original estimates and there are no indications of any difficulties with the remedy.

No activities were observed that would have violated the institutional controls. The cap and the

surrounding area were undisturbed, and no new uses of groundwater were observed. The fence around the Site is intact and in good repair.

**Question B: Are the exposure assumptions, toxicity data cleanup levels and remedial action objectives (rads) used at the time of the remedy selection still valid?**

**Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics**

Yes, the exposure assumptions used to develop the Human Health Risk Assessment included both current exposures (older child trespasser, adult trespasser) and potential future exposures (young and older future child resident, future adult resident and future adult worker). There have been no changes in the toxicity factors for the contaminants of concern that were used in the baseline risk assessment. These assumptions are considered to be conservative and reasonable in evaluating risk and developing risk-based cleanup levels. No change to these assumptions, or the cleanup levels developed from them is warranted. There has been no change to the standardized risk assessment methodology that could affect the protectiveness of the remedy. The remedy is progressing though slower than expected. Based on groundwater sample results, significant progress has been made toward the PALs and it is expected that all groundwater cleanup levels will be met within a reasonable time. Therefore it is not now necessary or appropriate to invoke the contingent remedy described in the ROD.

**Question C: Has any other information come to light that could call into question the protectiveness of the remedy?**

No ecological targets were identified during the baseline risk assessment and none were identified during the five-year review, and therefore monitoring of ecological targets is not necessary. All groundwater and surface water samples analyzed found no contamination of wetlands or surface water. No weather-related events have affected the protectiveness of the remedies. There is no other information that calls into question the protectiveness of the remedies. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy.

**Technical Assessment Summary**

According to the data reviewed, the site inspection, and the interviews, the remedies are functioning as intended by the ROD. There are no changes in the physical conditions of the site that would affect the protectiveness of the remedy. There have been no changes in the toxicity factors for the contaminants of concern that were used in the baseline risk assessment, and there have been no changes to the standardized risk assessment methodology that could affect the protectiveness of the remedies. There is no other information that calls into question the protectiveness of the remedies.

**VIII. Issues**



**Table 3: Issues**

Issues	Affects	
	current Protectiveness (Y/N)	future Protectiveness (Y/N)
Settlement area on the east side of the landfill.	N	Y
Institutional Control are needed to make sure no other encumbrances on property conflict with IC's	N	Y
Continue the long-term monitoring of the groundwater system.	N	Y

## IX. Recommendations and Follow-up Actions

**Table 4: Recommendations and Follow-up Actions**

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current/Future	
Evidence that no conflict on IC's	Have legal counsel check this issue	PRPs	WDNR	2006	N	Y
Check IC in places	Within 6 month	PRPs	WDNR	3/30/06	N	Y
lowest in the east side of the Landfill	Re-grade the settlement area on the east side of the landfill	PRPs	WDNR	9/30/06	N	Y

## **X. Protectiveness Statement(s)**

The remedy is protective in the short-term of human health and the environment. All immediate threats at the site have been addressed. All threats at the Site have been addressed through deed restrictions, site fencing and posting, site grading and filling, site capping, and placement of vegetative cover soil.

Long-term protectiveness at the Sauk County Landfill Superfund site (the Site) will be achieved by continuing the long-term monitoring of the ground water system. Long-term groundwater monitoring has demonstrated that the concentrations of the chemicals of concern have declined. Long-term trends show significant and adequate improvements in ground water quality.

## **XI. Next Review**

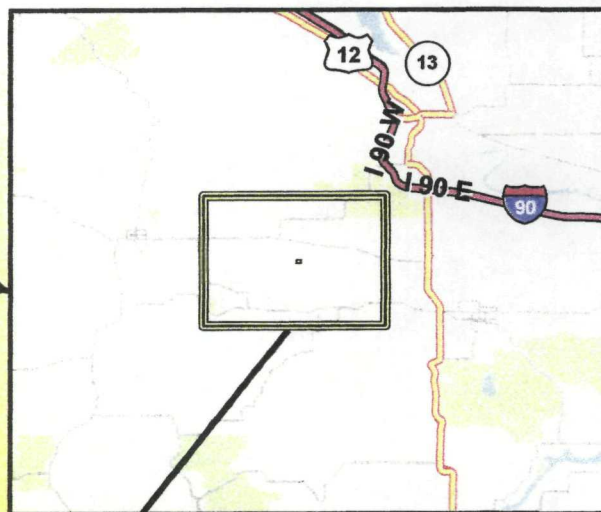
The next Five-Year Review for the Site will be completed five years from the signature date of this report in August 2010.

# Sauk County Landfill, Superfund Site Sauk County, Wisconsin

1) State



2) Sauk County



3) Sauk County Landfill Site

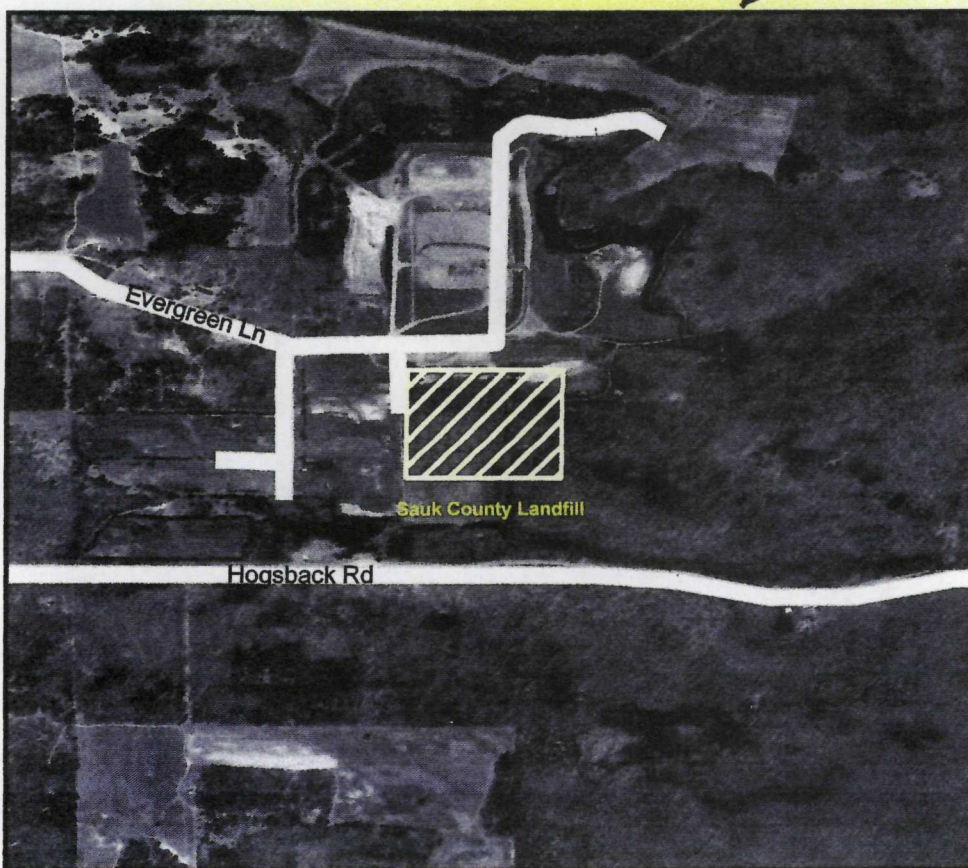


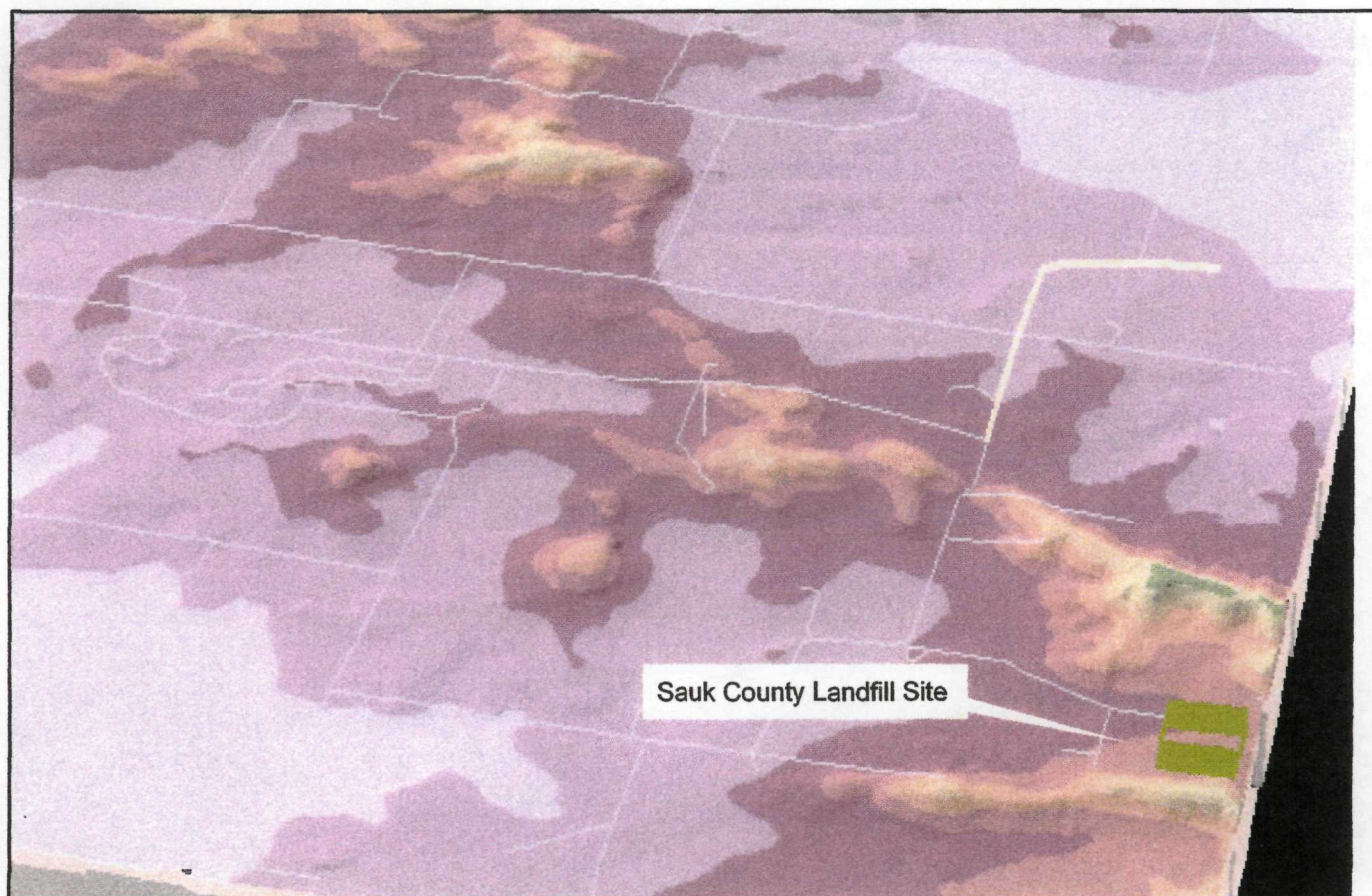
Figure 1



Plot created by: Heather Shaffique  
U.S. EPA Region 5 on 3/23/2005

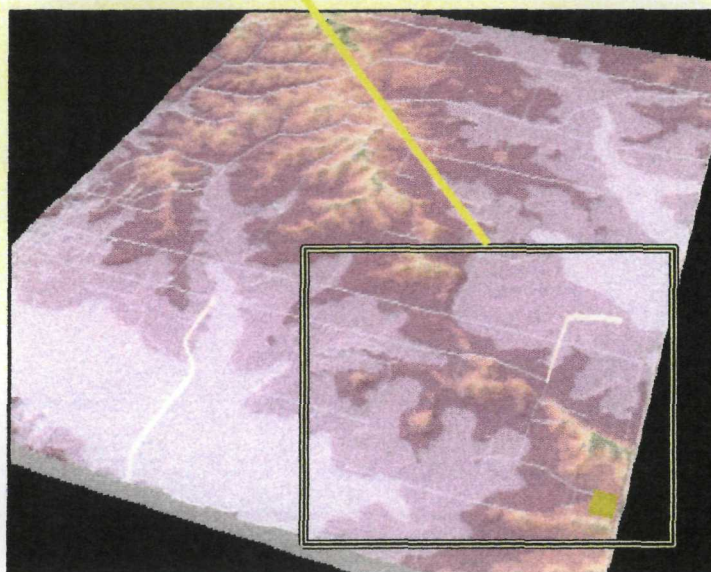


## Sauk County Landfill Superfund Site 3D Surface Terrain Model



### Elevation ft

1214 - 1260
1168 - 1214
1122 - 1168
1076 - 1122
1030 - 1076
984 - 1030
938 - 984
892 - 938
846 - 892



**Figure 2**

**GEOS**  
Groundwater Evaluation and Optimization System

Plot created by: Nasser Shalque  
U.S. EPA Region 6 on 4/18/2006

**Table 4-1 Summary of Groundwater Elevations  
Sauk County Closed Landfill, Baraboo, Wisconsin**

WELL #	PVC Top	Dec-93	Oct-94	May-95	Oct-95	May-96	Oct-96	Apr-97	Jun-97*	Oct-97	Apr-98
TW-E	984.47	950.09	946.26	944.38	944.49	944.1	945.41	944.27	944.03	943.69	942.89
TW-F	969.59	940.61	937.24	934.96	935.51	934.64	936.08	934.49	934.18	934.01	933.29
TW-G	992.99	942.42	939.11	936.87	937.45	936.81	938.45	936.67		936.14	935.13
TW-H	960.99	923.24	919.74	917.17	917.15	916.58	918.38	916.44		915.43	
TW-J	1008.01	954.93	949.81	947.76	947.67	947.58	949.26	947.97	947.53	947.01	946.13
TW-K	1009.74	946.36	944.79	943.89	943.9	943.57	944.43	943.66		943.2	942.72
TW-25	992.86	942.45	939.15	936.89	937.5	936.82	938.49	936.66		936.16	935.14
TW-25A	992.15	916.42	913.36	910.67	910.14	909.8	911.78	909.91		908.33	906.89
TW-26	981.62	934.6	930.87	927.96	928.54	927.74	929.58	927.37		926.63	925.29
TW-26A	980.79	922.15	918.77	916.07	915.86	915.43	917.18	915.39		912.87	912.69
TW-26B	980.82	920.83	NA	914.37	914.18	913.85	915.91	914.14		914.18	911.46
TW-27	993.13	941.08	937.19	934.58	935.11	934.47	936.43	934.23		933.56	932.53
TW-28	965.45	935.62	932.68	930.79	931.54	930.7	931.76	930.41	930.15	930.05	928.95
TW-28A	965.53	923.71	919.68	916.99	917.99	918.3	918.14	916.87	916.75	917.26	915.94
TW-29	961.73	923.09	919.7	917.02	917.07	916.54	918.34	916.37		915.31	913.89
TW-29A	961.14	922.68	919.14	916.49	916.48	915.97	917.74	915.8		914.73	913.3
TW-29B	961.87	917.76	914.32	911.72	911.14	911.16	912.37	910.63		909.29	908.13
TW-29C	960.57	916.57	913.12	910.62	910.19	909.79	911.5	909.83		908.43	906.89
TW-30	1045.68	958.75	953.71	951.42	950.8	950.67	951.77	950.82	950.43	949.86	949.13
TW-30A	1044.64	957.83	953.08	950.8	950.26	950.1	951.21	950.26	949.88	949.37	948.66
TW-31	1042.78	956.22	951.24	948.99	948.25	<940.73	948.83	948.52	948.06	947.61	947.05
TW-33	1007.22	951.62	947.48	945.66	945.59	945.38	946.22	945.58	945.32	945.08	944.5
TW-34	995.65	953.57	948.84	946.87	946.81	946.54	947.96	946.91	946.59		
TW-35R	981.44	NA	NA	940.6	940.9	940.22	941.28	940.34	940	939.77	938.81
TW-36	990.89	947.42	943.42	941.81	942.08	923.59	942.67	942.03	941.67	941.44	940.66
TW-37	1010.28	951.76	946.84	945.58	945.56	945.7	948.83	946.4		945.35	
TW-37A	1010.77	916.14	913.34	910.34	909.65	908.91	910.84	909.13		907.66	906.37
TW-38	975.29	932.43	927.25	922.91	924.03	923.14	926.98	922.65			922.63
TW-38A	976.51	917.92	914.06	911.71	911.07	910.67	912.55	910.85		909.33	907.79
TW-39	1100.73	946.44	945	944.48	944.47	944.46	945.21	944.77		944.23	943.87
TW-39A	1100.92	918.08	914.31	911.73	911.07	910.77	912.72	911.09		909.3	907.6
TW-40	987.07	926.47	921.81	920.04	920.39	920.02	921.68	919.83		919.15	918.15
TW-40A	987.61	917.79	913.7	910.12	910.63	910.49	912.32	910.59		908.92	907.45
TW-41	1033.73	961.72	955.64	954.83	954.75	955.49	957.27	955.84		954.71	954.77
TW-41A	1034.12	914.53	912.29	910.06	909.26	908.47	910.2	908.77		907.27	906.02
TW-50	1020.25				946.07	945.65	946.24	945.96	945.57	945.13	944.87
TW-51	995.39				938.79	938.43	939.46	938.86	938.51	938.38	937.75
TW-51A	995.05				909.03	908.44	910.1	908.45	908.11	907.34	906.14

TP - Water level below top of pump

\*6-97: QED Installation and sampling of active landfill only



**Table 4-1 Summary of Groundwater Elevations**  
**Sauk County Closed Landfill, Baraboo, Wisconsin**

WELL #	PVC Top	Oct-98	Apr-99	Oct-99	Apr-00	Oct-00	Apr-01	Oct-01	Apr-02	Oct-02	Apr-03	Oct-03	May-04	Oct-04
TW-E	984.47	945.17	944.3	945.4	943.84	944.99	943.77	944.44	943.82			942.08		946.21
TW-F	969.59	935.91	934.64	936.19	934.14	935.59	934.04	935.35	934.37	934.88	933.49	932.32	931.08	936.89
TW-G	992.99	937.99	936.68	938.04	936.17	937.67	936.09	936.97	936.5		935.76	930.16	932.83	939.28
TW-H	960.99	917.64	916.26	917.91	915.82	917.55	915.54	916.95	916.65					918.52
TW-J	1008.01	948.63	947.7	948.7	947.24	948.31	947.04	947.36	947.07		946.53	945.18	943.77	0
TW-K	1009.74	943.94	943.51	943.93	943.04	943.83	943.09	943.38	949.19	943.5	943	941.95	940.75	944.71
TW-25	992.86	938.00	936.69	938.06	936.16	937.7	936.08	936.97	936.47	937.09	935.63	934.41	932.75	939.26
TW-25A	992.15	910.55	909.49	910.93	908.51	910.55	908.84	910.3	909.6	910.21	908.24	906.78	904.99	910.52
TW-26	981.62	928.88	927.27	929.03	926.71	928.47	926.42	927.71	927.17	927.76	926.04	924.29	922.62	929.79
TW-26A	980.79	916.32	915.02	916.69	914.51	916.21	914.32	915.73	915.32	915.79	916.99	912.23	910.34	0
TW-26B	980.82	915.15	913.67	915	912.83	914.78	912.86	914.38	913.95	914.32	912.67	910.99	909.14	916.65
TW-27	993.13	935.69	934.18	935.6	933.63	935.28	933.4	934.2	933.85	934.57	933.2	931.62	929.85	937.24
TW-28	965.45	931.8	930.53	932.29	930.46	931.75	930.24	931.77	930.69	931.03	929.55	928.74	927.94	932.63
TW-28A	965.53	918.29	916.81	917.44	914.81	916.35	915.06	917.28	916.16	916.92	915.22	913.71	912.85	918.67
TW-29	961.73	917.56	916.14	917.88	915.74	917.52	915.53	916.91	916.54	917.01	915.13	913.36	911.58	918.27
TW-29A	961.14	916.97	915.55	917.28	915.14	916.94	914.94	916.38	915.98	916.4	914.55	912.79	911.02	917.67
TW-29B	961.87	912.26	910.88	912.15	909.95	911.47	909.86	911.72	911.54	912.11	910.05	908.67	906.96	913.24
TW-29C	960.57	910.62	909.25	910.62	908.73	910.57	908.67	910.23	909.88	910.08	908.25	906.6	0	911.01
TW-30	1045.68	950.83	950.64	951.01	950	950.36	949.47	949.55	949.05	949.13	948.39	947.41	946.07	948.97
TW-30A	1044.64	950.34	950.1	950.51	949.46	949.86	948.95	949.12	948.57	948.68	947.92	947.02	0	948.68
TW-31	1042.78	948.06	948.36	948.38	947.85	947.91	947.27	947.18	946.83	946.83	954.33	945.59	TP	946.33
TW-33	1007.22	946.18	945.7	946.33	945.23	945.88	944.85	945.29	944.84	944.78	944.07	943.09	942.07	945.82
TW-34	995.65	947.46	946.65	947.66		947.21		946.55					TP	948.08
TW-35R	981.44	941.46	940.38	941.72	939.89	941.07	939.73	941.06	939.93	940.06	938.88		TP	942.08
TW-36	990.89	943.09	942.1	943.41	941.56	942.67	941.39	942.68	941.50	941.52	940.31	939.42	938.4	943.16
TW-37	1010.28	947.13	946.64	945.2	945.2									
TW-37A	1010.77	909.51	908.66	909.88	908.23	909.5	907.84	909.35	909.01	909.64	908.14	906.31	904.29	0
TW-38	975.29	925.37	924.87	924.87	922.38	924.48		922.61		922.88				0
TW-38A	976.51	911.51	910.23	909.67	909.67	911.3	909.57	911.04	910.61	911.08	908.97	907.34	905.61	911.94
TW-39	1100.73	944.79	944.74	944.52	944.52	944.9	944.46	944.48	944.42	944.57	944.39	943.79	942.11	945.42
TW-39A	1100.92	911.11	910.49	911.86	909.92	911.45	909.74	911.02	910.64	911.12		907.83	905.89	911.25
TW-40	987.07	921.05	919.71	920.99	925.31	920.72	919.24	919.9	919.72	920.26	918.88	917.46	916.05	922.01
TW-40A	987.61	911.17	910.03	911.65	909.33	911.23	909.52	909.86	910.19	910.72	908.52	906.93	905.41	911.86
TW-41	1033.73	955.7	955.89	955.62	955.28	956.63	955.34	954.76	955.38	956.21	955.51	954.82	954.68	0
TW-41A	1034.12	908.92	908.25	909.35	907.9	908.94	907.4	908.77	908.58	909.2	907.87	906.03	903.89	908.42
TW-50	1020.25	926.39	926	926.32	925.55	935.95	945.05	945.48	944.99	945.98	944.37		TP	945.77
TW-51	995.39	940.55	939.37	940.9	939.08	940.35	938.84	940.22	939.05	939.07	937.75	936.71	935.68	940.14
TW-51A	995.05	908.18	908.44	936.43	907.38	908.65	907.35	909.28	907.98	909.05	906.60	905.34	904.04	909.59

TP - Water level below top of pump

\*6-97: QED Installation and sampling of active landfill only

Table 3-1. Monitor Wells Included in Semi-Annual Sampling

WELL	GEOLOGIC UNIT	SELECTION CRITERIA
TW-K*	M/LR	Shallow near source characterization west of south end of landfill; currently exceeds PALs.
TW-25*	U/M	Shallow near source characterization west of landfill: provide continued historical trend data; currently exceeds ESs.
TW-25A*	W	Deep near source characterization west of landfill; currently exceeds PALs.
TW-26A	LR	Central plume characterization; provide continued historical trend data.
TW-29B	W	Leading edge of contaminant plume near the western property boundary.
TW-29C	W	Leading edge of deep contaminant plume near the western property boundary; currently exceeds PALs.
TW-37	M	Shallow near source characterization east of landfill.
TW-37A**	LR	Deep near source characterization east of landfill.
TW-38	U/M	Shallow aquifer south central plume extent.
TW-38A**	W	South central plume extent of deep aquifer.
TW-39A**	W	Extent of plume characterization immediately southwest of the landfill; no VOCs detected previously.
TW-40A	W	Leading edge of contaminant plume in the deep aquifer at south western property boundary; exceeds PALs.

Notes: U = Unconsolidated Deposits

M = Mazomanie Formation Sandstone

LR = Lone Rock Formation - Shale

W = Wonewoc Formation - Sandstone

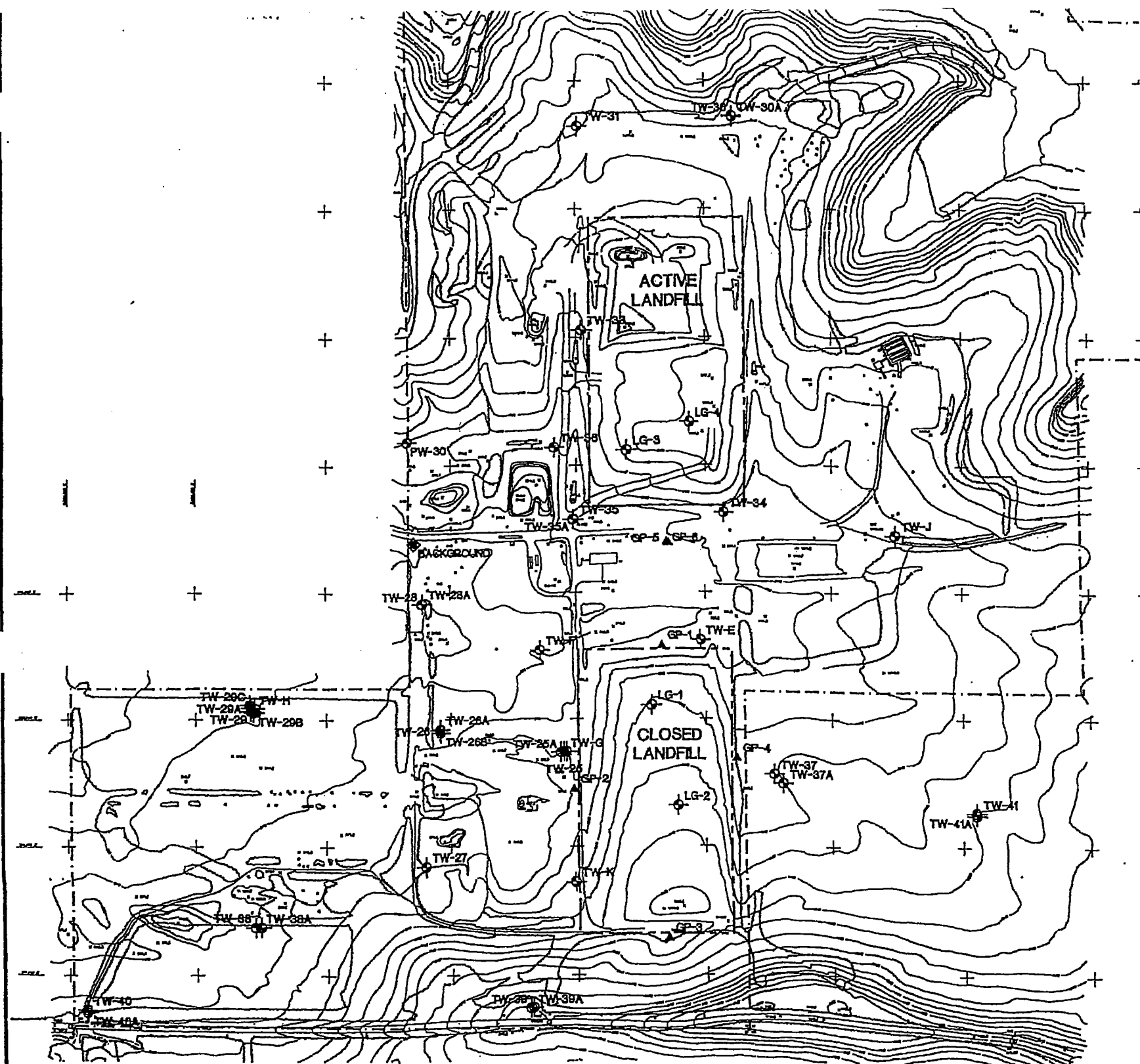
\* = VOC Concentrations at Wells TW-K, TW-25, and TW-25A will be used to determine if a composite cap is required for the site.

\*\* = TW-37A, TW-38A and TW-39A were removed from the monitoring program in October 1998 because they were consistently free of measurable VOC concentrations.

**This page has been redacted due to confidential information.**

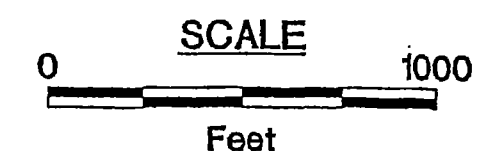
**(one page)**





## EXPLANATION

- TW-37A MONITOR WELL LOCATION AND DESIGNATION
- PW-30 PRIVATE WELL LOCATION AND DESIGNATION
- LG-2 LEACHATE HEAD WELL/ GAS WELL LOCATION AND DESIGNATION
- GP-1 GAS PROBE LOCATION AND DESIGNATION
- BACKGROUND AIR SAMPLE LOCATION AND DESIGNATION
- PROPERTY BOUNDARY
- EXTENT OF REFUSE FILLED AREA



Base map from Horizons, Inc., data of photography 12-13-91.

/hsi/207/3037/3037-b1

**SIMON HYDRO-SEARCH**

Brookfield Lakes Corporate Center XII  
175 N. Corporate Drive, Suite 100  
Brookfield, Wisconsin 53045

Dsgn. by: *McP* Chk. by: *DCN* Apprv. by: *GLD*

PROJECT: 302073037

DATE: 01/21/94

SAUK COUNTY LANDFILL  
SAUK COUNTY, WISCONSIN

**MONITOR WELL AND  
LANDFILL GAS  
SAMPLING LOCATIONS**

DRAWING: 3037-B1

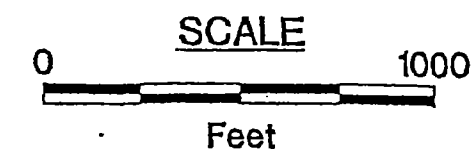
FIGURE: 2 - 2



## EXPLANATION

- TW-38** MONITOR WELL LOCATION, DESIGNATION AND WATER-TABLE ELEVATION (ft. msl)  
 (932.43)
- PW-30** PRIVATE WELL LOCATION AND DESIGNATION
- LG-2** LEACHATE HEAD WELL/ GAS WELL LOCATION AND DESIGNATION
- GP-1** GAS PROBE LOCATION AND DESIGNATION
- PROPERTY BOUNDARY
- 940** WATER TABLE ELEVATION CONTOUR (ft. msl)  
 2-FOOT CONTOUR INTERVAL (dashed where inferred)

Note: Ground water elevations  
measured December 13, 1993.



**SIMON HYDRO-SEARCH**

Brookfield Lakes Corporate Center XII  
175 N. Corporate Drive, Suite 100  
Brookfield, Wisconsin 53045

Dsgn. by: *MEP* Chk. by: *DCN* Apprv. by: *GLD*

PROJECT: 302073037

DATE: 01/21/94

SAUK COUNTY LANDFILL  
SAUK COUNTY, WISCONSIN

December 1993

**WATER TABLE  
MAP**

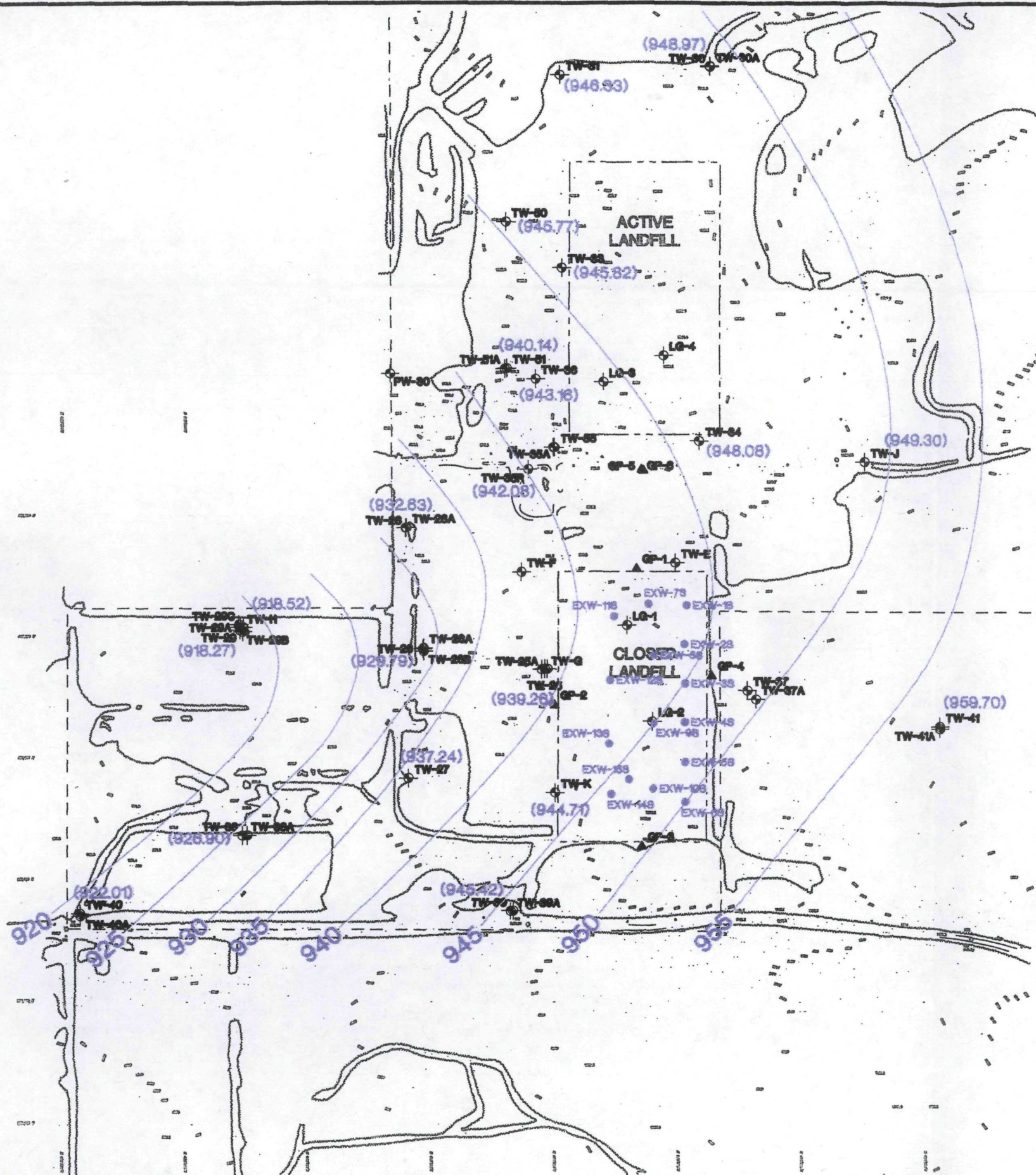
DRAWING: 3037-B2b

FIGURE: 2-3

Base map from Horizons, Inc., date of photography 12-13-91.

/hsj/207/3037/3037-b2b





## EXPLANATION

- TW-37A MONITOR WELL LOCATION AND DESIGNATION
- PW-30 PRIVATE WELL LOCATION AND DESIGNATION
- LG-2 LEACHATE HEAD WELL/ GAS WELL LOCATION AND DESIGNATION
- ▲ GP-1 GAS PROBE LOCATION AND DESIGNATION

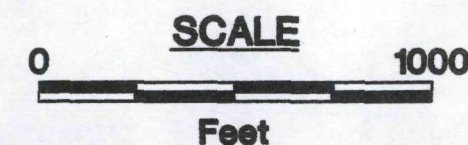
- PROPERTY BOUNDARY
- EXTENT OF REFUSE FILLED AREA

— 930 — WATER TABLE SURFACE CONTOUR (ft msl)

(934.57) WATER TABLE SURFACE ELEVATION (ft msl)

(NM) NOT MEASURED-WATER LEVEL BELOW PUMP

CONTOUR INTERVAL : 5 FEET

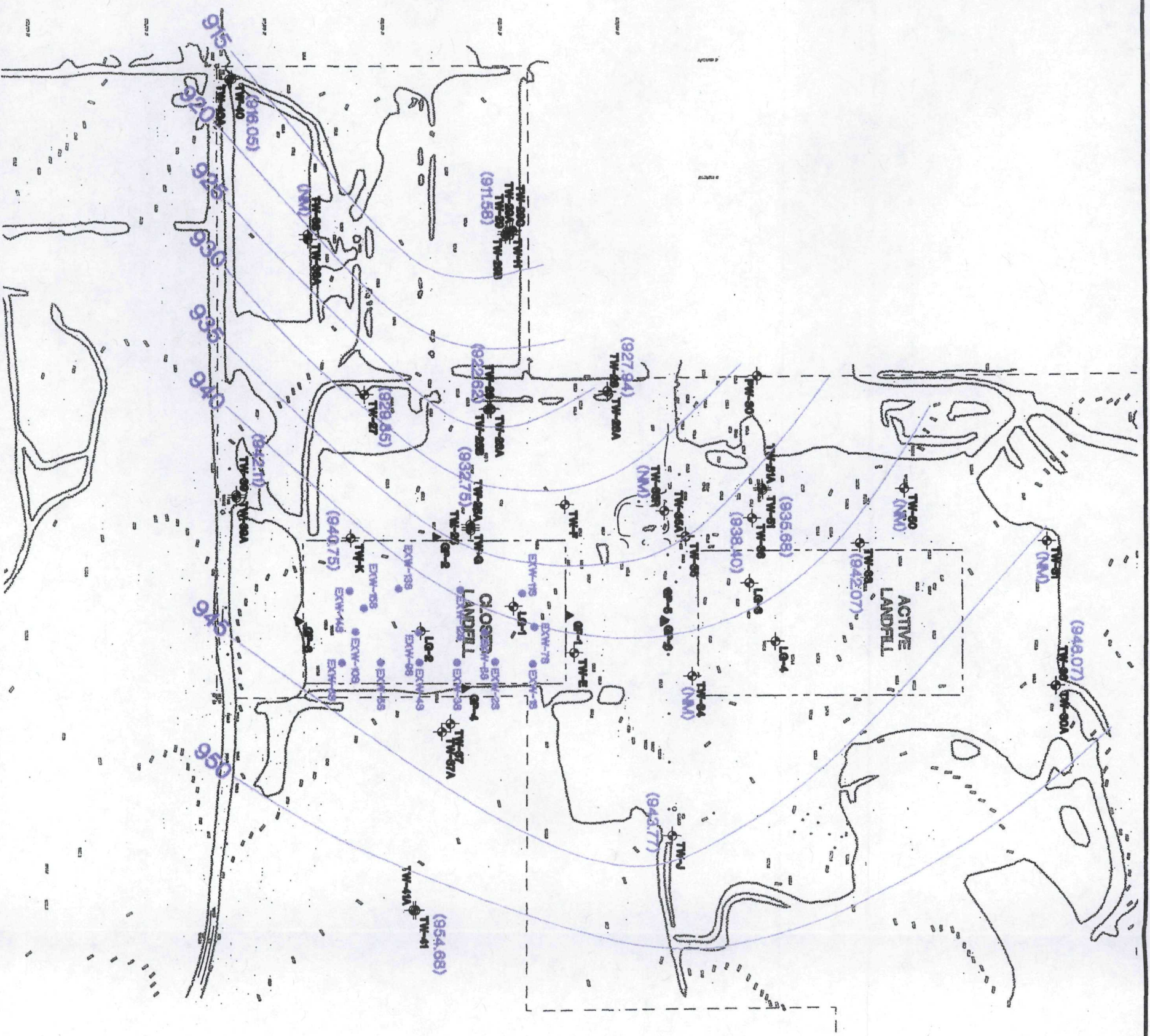


BASE MAP FROM HORIZONS, INC., DATE OF PHOTOGRAPHY 12/13/91.





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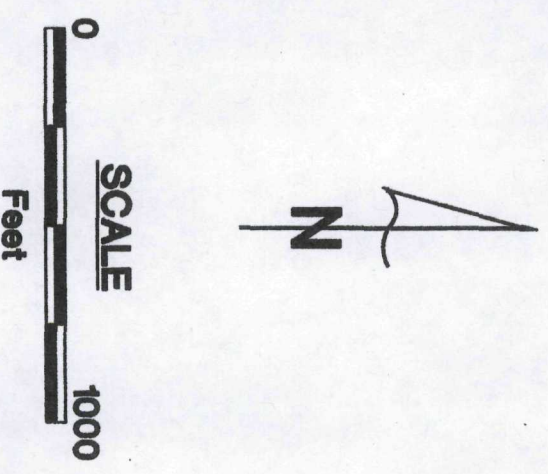
SAUK COUNTY LANDFILL SAUK COUNTY, WISCONSIN	DATE: 1/11/05
	DESIGNED: HJW
	CHECKED: KFL
	APPROVED: GLD
	DRAWN: HJW
FALL 2004 WATER TABLE MAP	PROJ: 1021004
	Figure 4-1
	






## EXPLANATION

-  TW-37A  
 MONITOR WELL LOCATION AND DESIGNATION  
 PW-30  
 PRIVATE WELL LOCATION AND DESIGNATION  
 LG-2  
 LEACHATE HEAD WELL/ GAS WELL  
 LOCATION AND DESIGNATION  
 GP-1  
 GAS PROBE LOCATION AND DESIGNATION
- 
- PROPERTY BOUNDARY
- 
- EXTENT OF REFUSE FILLED AREA
- 
- 930  
 WATER TABLE  
 SURFACE CONTOUR (ft msl)
- 
- (933.85)  
 WATER TABLE  
 SURFACE ELEVATION (ft msl)
- 
- (NM)  
 NOT MEASURED-WATER LEVEL BELOW PUMP  
 CONTOUR INTERVAL : 5 FEET

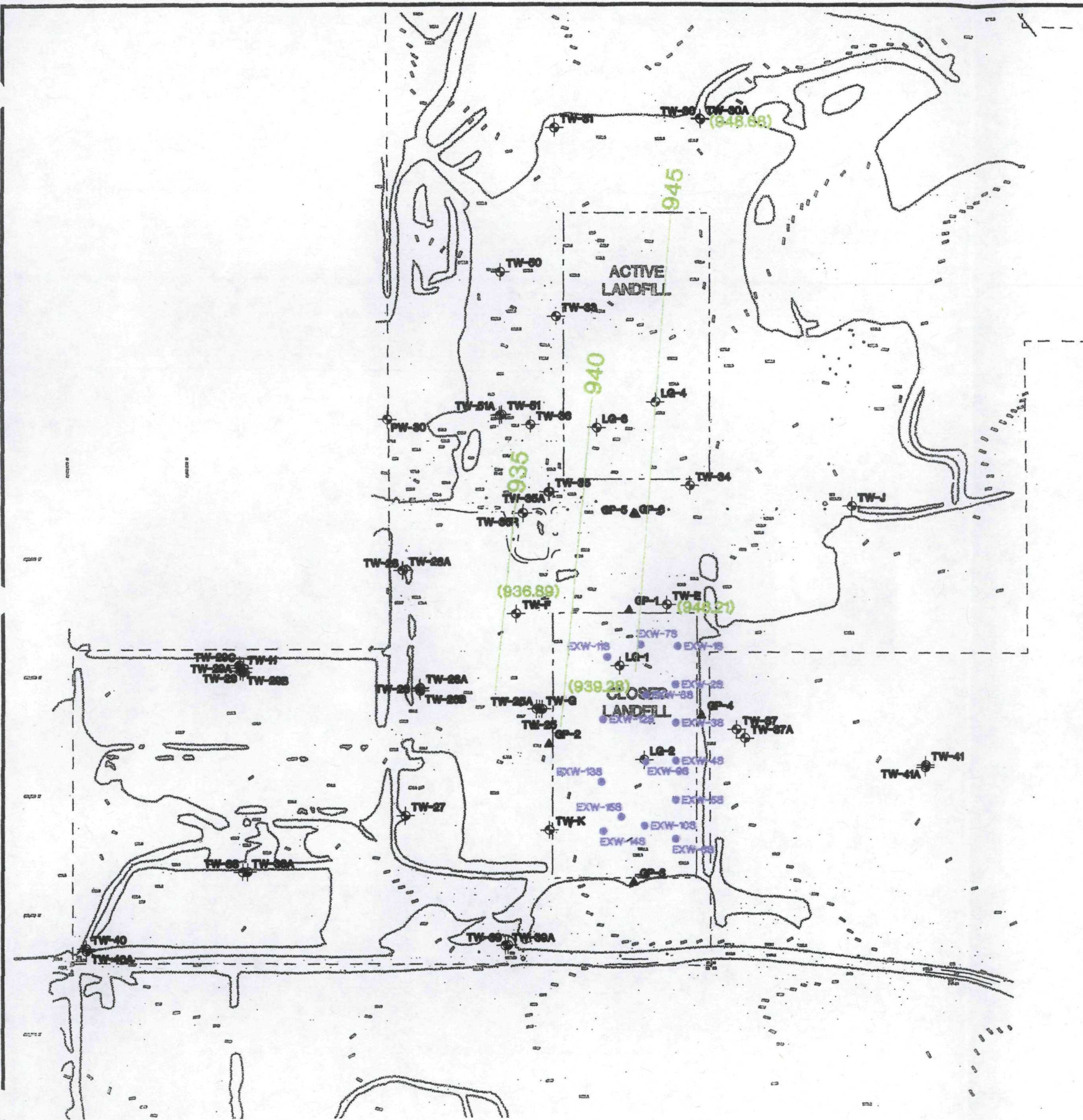


<b>SAUK COUNTY LANDFILL SAUK COUNTY, WISCONSIN</b>	
<b>SPRING 2004 WATER TABLE MAP</b>	
<b>DATE</b>	<b>1/11/06</b>
<b>DESIGNED:</b>	<b>HJM</b>
<b>CHECKED:</b>	<b>KFL</b>
<b>APPROVED:</b>	<b>GLD</b>
<b>DRAWN:</b>	<b>HJM</b>
<b>PROJ.:</b>	<b>1021004</b>

 <b>Geotrans, Inc.</b> <small>A Division of Geotrans Corporation</small>
---

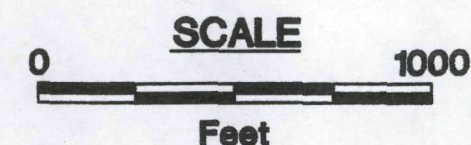
<b>Figure 4-2</b>
-------------------





## EXPLANATION

- TW-37A MONITOR WELL LOCATION AND DESIGNATION
- PW-30 PRIVATE WELL LOCATION AND DESIGNATION
- LG-2 LEACHATE HEAD WELL/ GAS WELL LOCATION AND DESIGNATION
- ▲ GP-1 GAS PROBE LOCATION AND DESIGNATION
- PROPERTY BOUNDARY
- EXTENT OF REFUSE FILLED AREA
- 940 UPPER INTERMEDIATE POTENTIOMETRIC SURFACE CONTOUR (ft msl)
- (934.88) UPPER INTERMEDIATE POTENTIOMETRIC SURFACE ELEVATION (ft msl)
- (NM) NOT MEASURED-WATER LEVEL BELOW PUMP
- CONTOUR INTERVAL : 5 FEET



<b>SAUK COUNTY LANDFILL</b> <b>SAUK COUNTY, WISCONSIN</b>  <b>FALL 2004</b> <b>UPPER INTERMEDIATE</b> <b>POTENTIOMETRIC</b> <b>SURFACE MAP</b>	DATE: 1/12/05
	DESIGNED: HJW
	CHECKED: KFL
	APPROVED: GLD
	DRAWN: HJW
	PROJ: 1021.004
	Figure 4-3

BASE MAP FROM HORIZONS, INC., DATE OF PHOTOGRAPHY 12/13/91.

\\GAD\Bask C:\1021004\1021004003A.dwg 01/12/2005 10:44:18





## EXPLANATION

- TW-37A MONITOR WELL LOCATION AND DESIGNATION
- PW-30 PRIVATE WELL LOCATION AND DESIGNATION
- LG-2 LEACHATE HEAD WELL/ GAS WELL LOCATION AND DESIGNATION
- ▲ GP-1 GAS PROBE LOCATION AND DESIGNATION

--- PROPERTY BOUNDARY

--- EXTENT OF REFUSE FILLED AREA

940 UPPER INTERMEDIATE POTENTIOMETRIC SURFACE CONTOUR (ft msl)

(934.37) UPPER INTERMEDIATE POTENTIOMETRIC SURFACE ELEVATION (ft msl)

(NM) NOT MEASURED

CONTOUR INTERVAL : 5 FEET

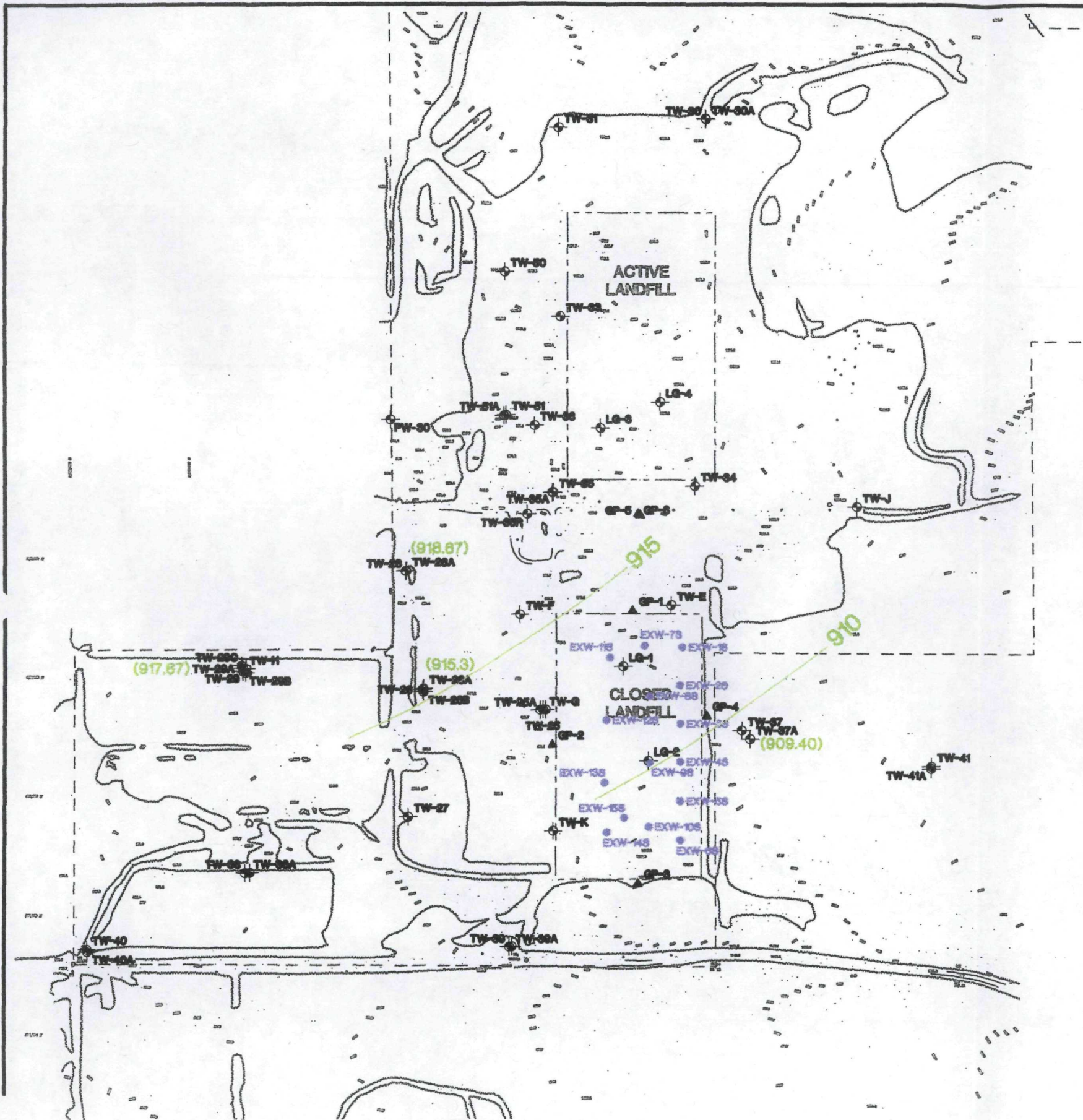


SAUK COUNTY LANDFILL SAUK COUNTY, WISCONSIN  SPRING 2004 UPPER INTERMEDIATE POTENTIOMETRIC SURFACE MAP	DATE: 1/07/05
	DESIGNED: HJW
	CHECKED: KFL
	APPROVED: GLD
	DRAWN: HJW
	PROJ.: 1021004
	Figure 4-4

BASE MAP FROM HORIZONS, INC., DATE OF PHOTOGRAPHY 12/13/91.

810AD/2004 0010210041021004004A.dwg 01/07/2005 10:45:44





## EXPLANATION

- TW-37A MONITOR WELL LOCATION AND DESIGNATION
- PW-30 PRIVATE WELL LOCATION AND DESIGNATION
- LG-2 LEACHATE HEAD WELL/ GAS WELL LOCATION AND DESIGNATION
- GP-1 GAS PROBE LOCATION AND DESIGNATION

- PROPERTY BOUNDARY
- EXTENT OF REFUSE FILLED AREA

915 LOWER INTERMEDIATE POTENTIOMETRIC SURFACE CONTOUR (ft msl)

(909.84) LOWER INTERMEDIATE POTENTIOMETRIC SURFACE ELEVATION (ft msl)

CONTOUR INTERVAL : 5 FEET



SCALE  
0 1000  
Feet

BASE MAP FROM HORIZONS, INC., DATE OF PHOTOGRAPHY 12/13/91.

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SAUK COUNTY LANDFILL  
SAUK COUNTY, WISCONSIN

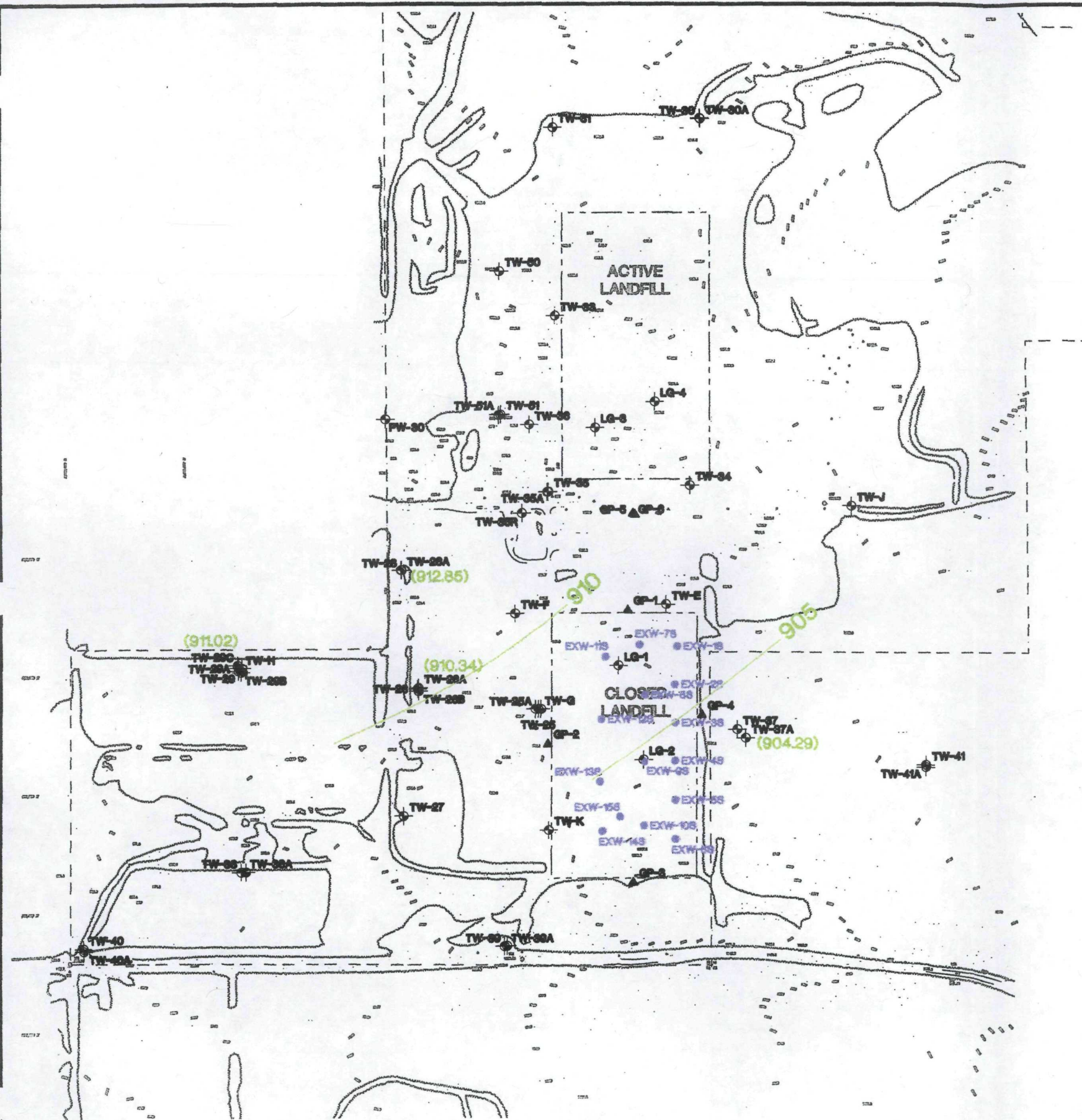
FALL 2004  
LOWER INTERMEDIATE  
POTENTIOMETRIC  
SURFACE MAP



DATE:	1/07/05
DESIGNED:	HJW
CHECKED:	KFL
APPROVED:	GLD
DRAWN:	HJW
PROJ:	1021004

Figure 4-5





## EXPLANATION

- TW-37A MONITOR WELL LOCATION AND DESIGNATION
- PW-30 PRIVATE WELL LOCATION AND DESIGNATION
- LG-2 LEACHATE HEAD WELL/ GAS WELL LOCATION AND DESIGNATION
- GP-1 GAS PROBE LOCATION AND DESIGNATION

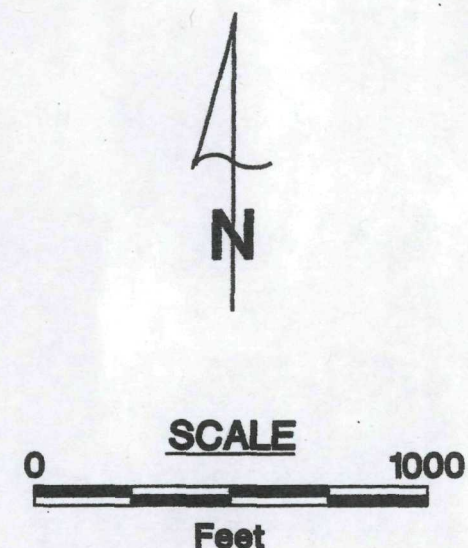
--- PROPERTY BOUNDARY

--- EXTENT OF REFUSE FILLED AREA

915 LOWER INTERMEDIATE POTENTIOMETRIC SURFACE CONTOUR (ft msl)


(915.32) LOWER INTERMEDIATE POTENTIOMETRIC SURFACE ELEVATION (ft msl)

CONTOUR INTERVAL : 5 FEET



BASE MAP FROM HORIZONS, INC., DATE OF PHOTOGRAPHY 12/13/91.

210401284 Co10210041021004008A.dwg 01/12/05 10:47:28

SAUK COUNTY LANDFILL SAUK COUNTY, WISCONSIN  SPRING 2004 LOWER INTERMEDIATE POTENTIOMETRIC SURFACE MAP	DATE: 1/12/05
	DESIGNED: HJW
	CHECKED: KFL
	APPROVED: GLD
	DRAWN: HJW
	PROJ: 1021004
	Figure 4-6

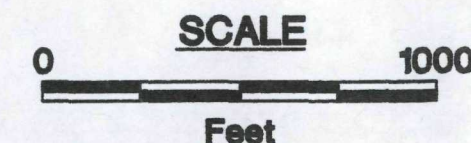
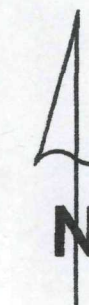




## EXPLANATION

- TW-37A MONITOR WELL LOCATION AND DESIGNATION
- PW-30 PRIVATE WELL LOCATION AND DESIGNATION
- LG-2 LEACHATE HEAD WELL/ GAS WELL LOCATION AND DESIGNATION
- ▲ GP-1 GAS PROBE LOCATION AND DESIGNATION

- PROPERTY BOUNDARY
- EXTENT OF REFUSE FILLED AREA
- 910.0 DEEP POTENTIOMETRIC SURFACE CONTOUR (ft msl)
- (910.21) DEEP POTENTIOMETRIC SURFACE ELEVATION (ft msl)
- CONTOUR INTERVAL : 0.5 FEET

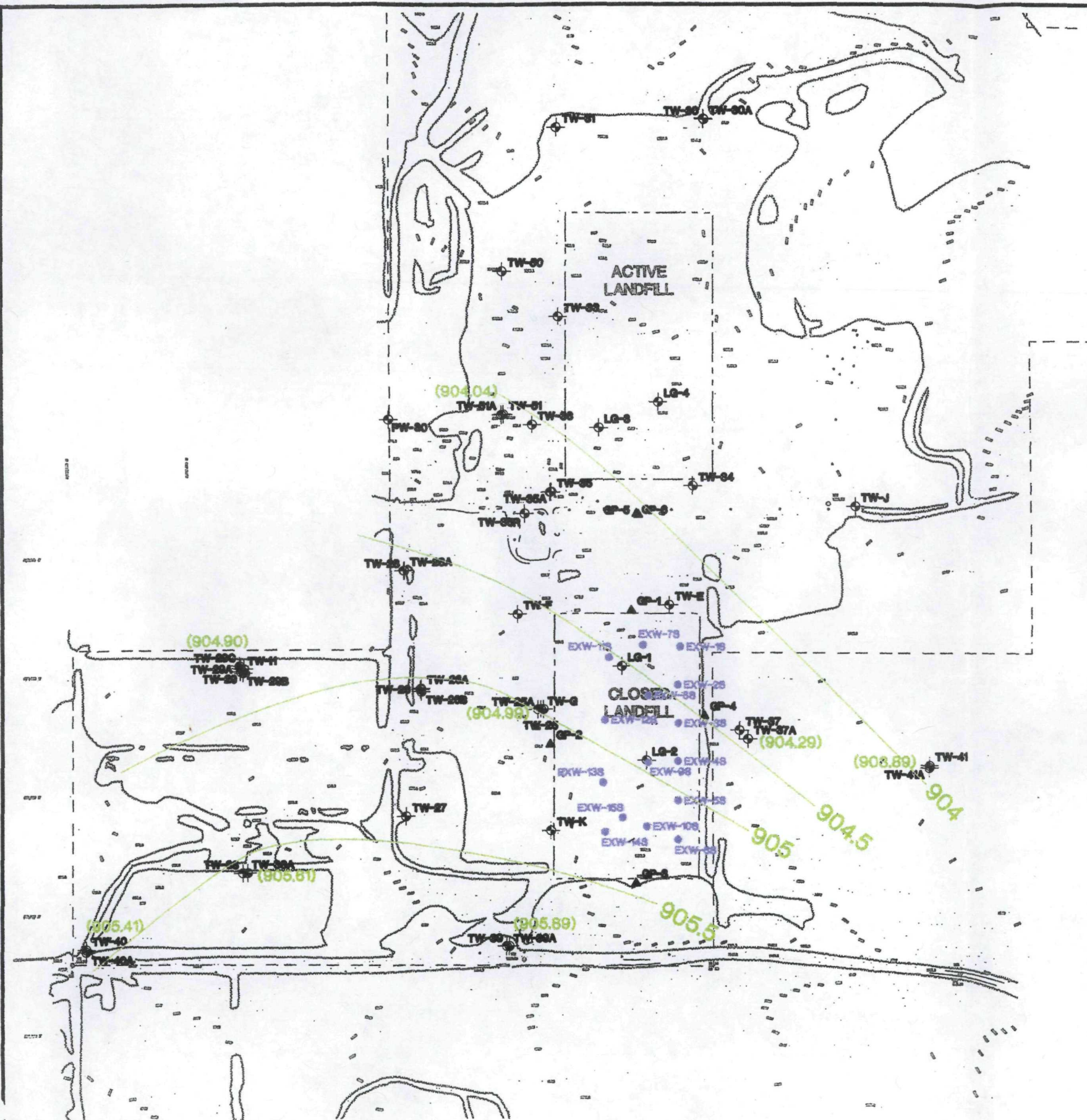


<b>SALK COUNTY LANDFILL</b> <b>SALK COUNTY, WISCONSIN</b>  <b>FALL 2004</b> <b>DEEP POTENTIOMETRIC</b> <b>SURFACE MAP</b>	DATE: 1/10/06
	DESIGNED: HJW
	CHECKED: KFL
	APPROVED: GLD
	DRAWN: HJW
	PROJ: 1021004
	Figure 4-7

BASE MAP FROM HORIZONS, INC., DATE OF PHOTOGRAPHY 12/13/91.

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## EXPLANATION

- TW-37A MONITOR WELL LOCATION AND DESIGNATION
- PW-30 PRIVATE WELL LOCATION AND DESIGNATION
- LG-2 LEACHATE HEAD WELL/ GAS WELL LOCATION AND DESIGNATION
- GP-1 GAS PROBE LOCATION AND DESIGNATION

--- PROPERTY BOUNDARY

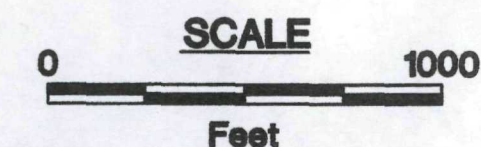
--- EXTENT OF REFUSE FILLED AREA

907.5 DEEP POTENTIOMETRIC SURFACE CONTOUR (ft msl)

(909.88) DEEP POTENTIOMETRIC SURFACE ELEVATION (ft msl)

(NM) NOT MEASURED

CONTOUR INTERVAL : 0.5 FEET



BASE MAP FROM HORIZONS, INC., DATE OF PHOTOGRAPHY 12/13/91.

SAUKCOUNTY Landfill 04/10/04 10:00:00 AM 01/10/05 14:00:19

SAUK COUNTY LANDFILL  
SAUK COUNTY, WISCONSIN

SPRING 2004  
DEEP POTENTIOMETRIC  
SURFACE MAP



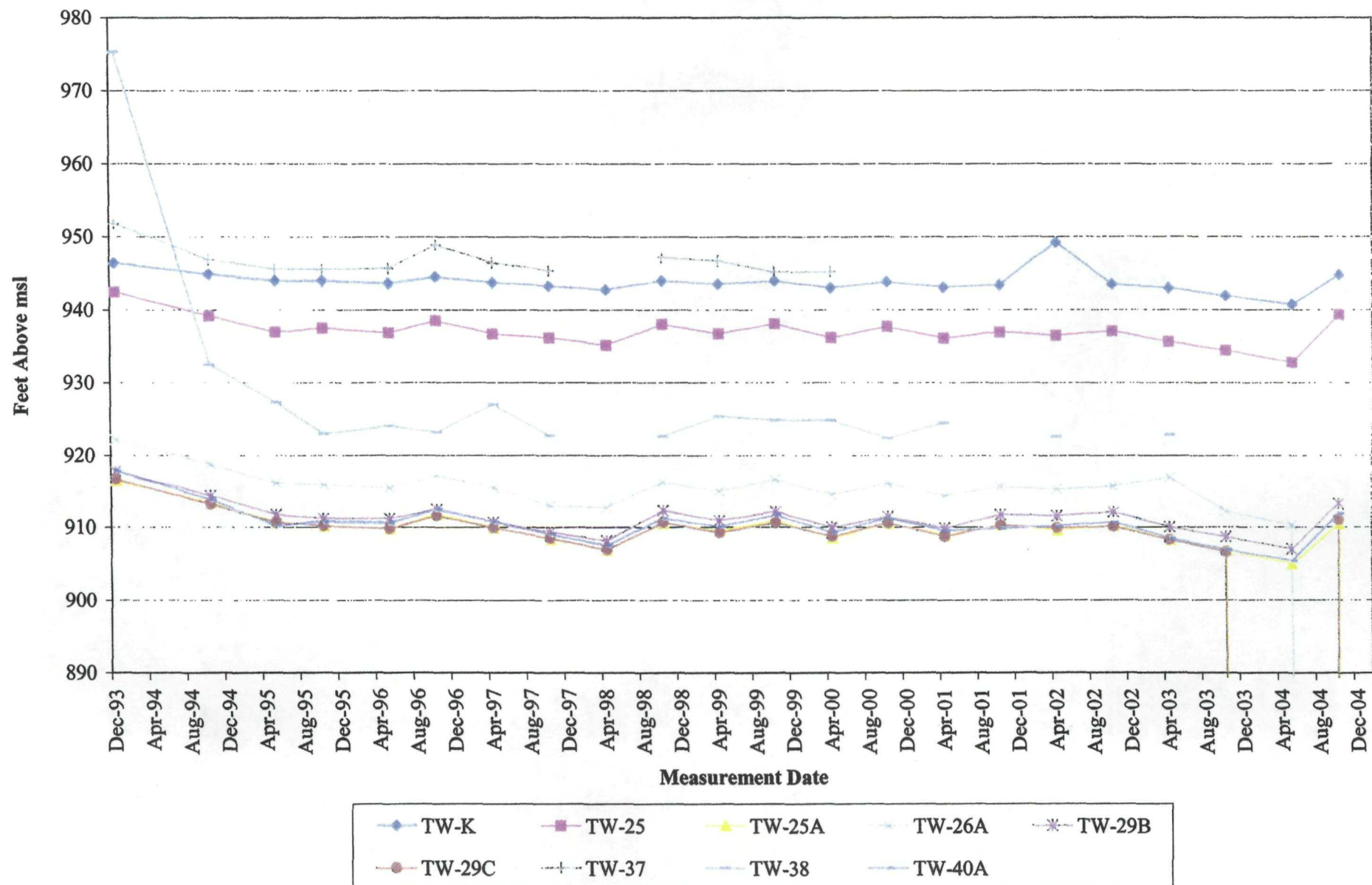
DATE: 1/10/05  
DESIGNED: HJW  
CHECKED: KFL  
APPROVED: GLD  
DRAWN: HJW  
PROJ: 1021004

Figure 4-8



**Chart 4-30 Groundwater Elevation Summary**

**Closed Sauk County Landfill  
Baraboo, Wisconsin**



\*6-97: QED Installation and sampling of active landfill only  
P:\Sauk\gwelevation.xls gwelev

**APPENDIX C**  
**LABORATORY ANALYTICAL RESULTS**

## ANALYTICAL REPORT

Mr. Jerry DeMers  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

01/21/2004  
Job No: 04.00447  
Sample No: 556490  
Account No: 39150  
Page 3 of 10

JOB DESCRIPTION: Sauk County Landfill  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: 02051144 Nathan Miller  
Baraboo, WI  
Rec'd at 5 degrees C

Date/Time Taken: 01/15/2004 12:45

Date Received: 01/16/2004

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Analyst	Batch
VOC - AQUEOUS - EPA 8260B								
Misc VOC Compounds								
Acetone	<2.0	ug/L	2.0	6.6	SW 8260B	01/20/2004	mae	4084
Benzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Bromobenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Bromochloromethane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Bromodichloromethane	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Bromoform	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Bromomethane	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
n-Butylbenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
sec-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	01/20/2004	mae	5842
tert-Butylbenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Carbon Tetrachloride	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Chlorobenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Chlorodibromomethane	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Chloroethane	<1.0	ug/L	1.0	3.3	SW 8260B	01/20/2004	mae	5842
Chloroform	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Chloromethane	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
2-Chlorotoluene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
4-Chlorotoluene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
1,2-Dibromo-3-Chloropropane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,2-Dibromoethane (EDB)	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Dibromomethane	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
1,2-Dichlorobenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
1,3-Dichlorobenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
1,4-Dichlorobenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Dichlorodifluoromethane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,1-Dichloroethane	3.2	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,2-Dichloroethane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,1-Dichloroethene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
cis-1,2-Dichloroethene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
trans-1,2-Dichloroethene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,2-Dichloropropane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,3-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	01/20/2004	mae	5842
2,2-Dichloropropane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,1-Dichloropropene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
cis-1,3-Dichloropropene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
trans-1,3-Dichloropropene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
2,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	01/20/2004	mae	4084

## ANALYTICAL REPORT

Mr. Jerry DeMers  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

01/21/2004  
Job No: 04.00447  
Sample No: 556490  
Account No: 39150  
Page 4 of 10

JOB DESCRIPTION: Sauk County Landfill  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: 02051144 Nathan Miller  
Baraboo, WI  
Rec'd at 5 degrees C

Date/Time Taken: 01/15/2004 12:45

Date Received: 01/16/2004

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Analyst	Batch
Di-isopropyl ether	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Ethylbenzene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Hexachlorobutadiene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Isopropylbenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
p-Isopropyltoluene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Methylene Chloride	<1.0	ug/L	1.0	3.3	SW 8260B	01/20/2004	mae	5842
Methyl-t-butyl ether	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Naphthalene	<0.25	ug/L	0.25	0.83	SW 8260B	01/20/2004	mae	5842
n-Propylbenzene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Styrene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
1,1,1,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	01/20/2004	mae	5842
1,1,2,2-Tetrachloroethane	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Tetrachloroethene	0.68	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Tetrahydrofuran	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	4084
Toluene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
1,2,3-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	01/20/2004	mae	5842
1,2,4-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	01/20/2004	mae	5842
1,1,1-Trichloroethane	1.1	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,1,2-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	01/20/2004	mae	5842
Trichloroethene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Trichlorofluoromethane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,2,3-Trichloropropane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,2,4-Trimethylbenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
1,3,5-Trimethylbenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Vinyl Chloride	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Xylenes, Total	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Surr: Dibromofluoromethane	100	%		89-119	SW 8260B	01/20/2004	mae	5842
Surr: Toluene-d8	100	%		91-109	SW 8260B	01/20/2004	mae	5842
Surr: Bromofluorobenzene	102	%		89-114	SW 8260B	01/20/2004	mae	5842

## ANALYTICAL REPORT

Mr. Jerry DeMers  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

01/21/2004  
Job No: 04.00447  
Sample No: 556491  
Account No: 39150  
Page 5 of 10

JOB DESCRIPTION: Sauk County Landfill  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: 02051999 Trip Blank  
Baraboo, WI  
Rec'd at 5 degrees C

Date/Time Taken: 01/15/2004 UNKNOWN

Date Received: 01/16/2004

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Analyst	Batch
VOC - AQUEOUS - EPA 8260B								
Misc VOC Compounds								
Acetone	<2.0	ug/L	2.0	6.6	SW 8260B	01/20/2004	mae	4084
Benzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Bromobenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Bromochloromethane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Bromodichloromethane	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Bromoform	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Bromomethane	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
n-Butylbenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
sec-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	01/20/2004	mae	5842
tert-Butylbenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Carbon Tetrachloride	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Chlorobenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Chlorodibromomethane	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Chloroethane	<1.0	ug/L	1.0	3.3	SW 8260B	01/20/2004	mae	5842
Chloroform	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Chloromethane	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
2-Chlorotoluene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
4-Chlorotoluene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
1,2-Dibromo-3-Chloropropane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,2-Dibromoethane (EDB)	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Dibromomethane	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
1,2-Dichlorobenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
1,3-Dichlorobenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
1,4-Dichlorobenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Dichlorodifluoromethane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,1-Dichloroethane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,2-Dichloroethane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,1-Dichloroethene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
cis-1,2-Dichloroethene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
trans-1,2-Dichloroethene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,2-Dichloropropane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,3-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	01/20/2004	mae	5842
2,2-Dichloropropane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,1-Dichloropropene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
cis-1,3-Dichloropropene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
trans-1,3-Dichloropropene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
2,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	01/20/2004	mae	4084

## ANALYTICAL REPORT

Mr. Jerry DeMers  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

01/21/2004  
Job No: 04.00447  
Sample No: 556491  
Account No: 39150  
Page 6 of 10

JOB DESCRIPTION: Sauk County Landfill  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: 02051999 Trip Blank  
Baraboo, WI  
Rec'd at 5 degrees C

Date/Time Taken: 01/15/2004 UNKNOWN

Date Received: 01/16/2004

Parameter	Results	Units	MDL	LOQ	Method	Date	Prep/Run	
						Analyzed	Analyst	Batch
Di-isopropyl ether	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Ethylbenzene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Hexachlorobutadiene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Isopropylbenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
p-Isopropyltoluene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Methylene Chloride	L 1.5	ug/L	1.0	3.3	SW 8260B	01/20/2004	mae	5842
Methyl-t-butyl ether	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Naphthalene	<0.25	ug/L	0.25	0.83	SW 8260B	01/20/2004	mae	5842
n-Propylbenzene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Styrene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
1,1,1,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	01/20/2004	mae	5842
1,1,2,2-Tetrachloroethane	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Tetrachloroethene	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Tetrahydrofuran	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	4084
Toluene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
1,2,3-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	01/20/2004	mae	5842
1,2,4-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	01/20/2004	mae	5842
1,1,1-Trichloroethane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,1,2-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	01/20/2004	mae	5842
Trichloroethene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Trichlorofluoromethane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,2,3-Trichloropropane	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
1,2,4-Trimethylbenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
1,3,5-Trimethylbenzene	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Vinyl Chloride	<0.20	ug/L	0.20	0.67	SW 8260B	01/20/2004	mae	5842
Xylenes, Total	<0.50	ug/L	0.50	1.7	SW 8260B	01/20/2004	mae	5842
Surr: Dibromofluoromethane	98	%		89-119	SW 8260B	01/20/2004	mae	5842
Surr: Toluene-d8	99	%		91-109	SW 8260B	01/20/2004	mae	5842
Surr: Bromofluorobenzene	101	%		89-114	SW 8260B	01/20/2004	mae	5842



## QUALITY CONTROL REPORT

### CONTINUING CALIBRATION VERIFICATION

01/21/2004

Mr. Jerry DeMers  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 04.00447  
Account No: 39150

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Job Description: Sauk County Landfill

Parameter	Run Batch	True Value	Observed Value	Percent Recovery	Control Limits
VOC - AQUEOUS - EPA 8260B					
Benzene	5842	50.0	46.8	94	80 - 120
Bromoform	5842	50.0	48.5	97	80 - 120
Chlorobenzene	5842	50.0	48.0	96	80 - 120
Chloroform	5842	50.0	46.7	93	80 - 120
Chloromethane	5842	50.0	43.5	87	80 - 120
1,1-Dichloroethane	5842	50.0	46.0	92	80 - 120
1,1-Dichloroethene	5842	50.0	46.5	93	80 - 120
1,2-Dichloropropane	5842	50.0	45.9	92	80 - 120
Ethylbenzene	5842	50.0	47.6	95	80 - 120
Methyl-t-butyl ether	5842	50.0	45.8	92	80 - 120
1,1,2,2-Tetrachloroethane	5842	50.0	47.6	95	80 - 120
Toluene	5842	50.0	47.3	95	80 - 120
Trichloroethene	5842	50.0	48.3	97	80 - 120
1,2,4-Trimethylbenzene	5842	50.0	48.1	96	80 - 120
1,3,5-Trimethylbenzene	5842	50.0	48.0	96	80 - 120
Vinyl Chloride	5842	50.0	46.9	94	80 - 120
Xylenes, Total	5842	150	143	95	80 - 120
Surr: Dibromofluoromethane	5842	50.0	49.6	99	88 - 112
Surr: Toluene-d8	5842	50.0	49.6	99	89 - 112
Surr: Bromofluorobenzene	5842	50.0	50.0	100	90 - 114

## QUALITY CONTROL REPORT

### BLANKS

01/21/2004

Mr. Jerry DeMers  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 04.00447  
Account No: 39150

Page 8 of 10

Job Description: Sauk County Landfill

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
VOC - AQUEOUS - EPA 8260B						
Benzene		5842	<0.20	0.20	0.67	ug/L
Bromobenzene		5842	<0.20	0.20	0.67	ug/L
Bromochloromethane		5842	<0.50	0.50	1.7	ug/L
Bromodichloromethane		5842	<0.20	0.20	0.67	ug/L
Bromoform		5842	<0.20	0.20	0.67	ug/L
Bromomethane		5842	<0.20	0.20	0.67	ug/L
n-Butylbenzene		5842	<0.20	0.20	0.67	ug/L
sec-Butylbenzene		5842	<0.25	0.25	0.83	ug/L
tert-Butylbenzene		5842	<0.20	0.20	0.67	ug/L
Carbon Tetrachloride		5842	<0.50	0.50	1.7	ug/L
Chlorobenzene		5842	<0.20	0.20	0.67	ug/L
Chlorodibromomethane		5842	<0.20	0.20	0.67	ug/L
Chloroethane		5842	<1.0	1.0	3.3	ug/L
Chloroform		5842	<0.20	0.20	0.67	ug/L
Chloromethane		5842	<0.20	0.20	0.67	ug/L
2-Chlorotoluene		5842	<0.50	0.50	1.7	ug/L
4-Chlorotoluene		5842	<0.20	0.20	0.67	ug/L
1,2-Dibromo-3-Chloropropane		5842	<0.50	0.50	1.7	ug/L
1,2-Dibromoethane (EDB)		5842	<0.20	0.20	0.67	ug/L
Dibromomethane		5842	<0.20	0.20	0.67	ug/L
1,2-Dichlorobenzene		5842	<0.20	0.20	0.67	ug/L
1,3-Dichlorobenzene		5842	<0.20	0.20	0.67	ug/L
1,4-Dichlorobenzene		5842	<0.20	0.20	0.67	ug/L
Dichlorodifluoromethane		5842	<0.50	0.50	1.7	ug/L
1,1-Dichloroethane		5842	<0.50	0.50	1.7	ug/L
1,2-Dichloroethane		5842	<0.50	0.50	1.7	ug/L
1,1-Dichloroethene		5842	<0.50	0.50	1.7	ug/L
cis-1,2-Dichloroethene		5842	<0.50	0.50	1.7	ug/L
trans-1,2-Dichloroethene		5842	<0.50	0.50	1.7	ug/L
1,2-Dichloropropane		5842	<0.50	0.50	1.7	ug/L
1,3-Dichloropropane		5842	<0.25	0.25	0.83	ug/L
2,2-Dichloropropane		5842	<0.50	0.50	1.7	ug/L
1,1-Dichloropropene		5842	<0.50	0.50	1.7	ug/L
cis-1,3-Dichloropropene		5842	<0.20	0.20	0.67	ug/L
trans-1,3-Dichloropropene		5842	<0.20	0.20	0.67	ug/L
Di-isopropyl ether		5842	<0.50	0.50	1.7	ug/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT

### BLANKS

01/21/2004

Mr. Jerry DeMers  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 04.00447  
Account No: 39150

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Job Description: Sauk County Landfill

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Ethylbenzene		5842	<0.50	0.50	1.7	ug/L
Hexachlorobutadiene		5842	<0.50	0.50	1.7	ug/L
Isopropylbenzene		5842	<0.20	0.20	0.67	ug/L
p-Isopropyltoluene		5842	<0.20	0.20	0.67	ug/L
Methylene Chloride		5842	<1.0	1.0	3.3	ug/L
Methyl-t-butyl ether		5842	<0.50	0.50	1.7	ug/L
Naphthalene		5842	<0.25	0.25	0.83	ug/L
n-Propylbenzene		5842	<0.50	0.50	1.7	ug/L
Styrene		5842	<0.20	0.20	0.67	ug/L
1,1,1,2-Tetrachloroethane		5842	<0.25	0.25	0.83	ug/L
1,2,2-Tetrachloroethane		5842	<0.20	0.20	0.67	ug/L
Tetrachloroethene		5842	<0.50	0.50	1.7	ug/L
Toluene		5842	<0.20	0.20	0.67	ug/L
1,2,3-Trichlorobenzene		5842	<0.25	0.25	0.83	ug/L
1,2,4-Trichlorobenzene		5842	<0.25	0.25	0.83	ug/L
1,1,1-Trichloroethane		5842	<0.50	0.50	1.7	ug/L
1,1,2-Trichloroethane		5842	<0.25	0.25	0.83	ug/L
Trichloroethene		5842	<0.20	0.20	0.67	ug/L
Trichlorofluoromethane		5842	<0.50	0.50	1.7	ug/L
1,2,3-Trichloropropane		5842	<0.50	0.50	1.7	ug/L
1,2,4-Trimethylbenzene		5842	<0.20	0.20	0.67	ug/L
1,3,5-Trimethylbenzene		5842	<0.20	0.20	0.67	ug/L
Vinyl Chloride		5842	<0.20	0.20	0.67	ug/L
Xylenes, Total		5842	<0.50	0.50	1.7	ug/L
Surr: Dibromofluoromethane		5842	98.4		89-119	%
Surr: Toluene-d8		5842	98.2		91-109	%
Surr: Bromofluorobenzene		5842	100.8		89-114	%
Misc VOC Compounds						
Acetone		4084	<2.0	2.0	6.6	ug/L
2,3-Dichloropropene		4084	<0.25	0.25	0.83	ug/L
Tetrahydrofuran		4084	<0.50	0.50	1.7	ug/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT

### MATRIX SPIKE/MATRIX SPIKE DUPLICATE

01/21/2004

Mr. Jerry DeMers  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 04.00447  
Account No: 39150

Page 10 of 10

Job Description: Sauk County Landfill

Analyte	Prep	Run	Sample	Spike	Units	Matrix	MSD	MS	MSD	Control	Relative
	Batch	Batch				Spike		Percent	Percent		
	Number	Number	Result	Amount		Result	Result	Recovery	Recovery	Limits	Difference
VOC - AQUEOUS - EPA 8260B											
Benzene		5842	<0.20	50.0	ug/L	48.3	46.0	97	92	80 - 121	4.9
Chlorobenzene		5842	<0.20	50.0	ug/L	51.4	48.4	103	97	85 - 116	6.0
1,1-Dichloroethene		5842	<0.50	50.0	ug/L	48.1	47.0	96	94	72 - 131	2.3
Ethylbenzene		5842	<0.50	50.0	ug/L	50.2	48.2	100	96	83 - 118	4.1
Methyl-t-butyl ether		5842	<0.50	50.0	ug/L	47.9	46.1	96	92	71 - 127	3.8
Toluene		5842	<0.20	50.0	ug/L	50.5	48.1	101	96	82 - 116	4.9
Trichloroethene		5842	<0.20	50.0	ug/L	51.4	49.4	103	99	80 - 117	4.0
1,2,4-Trimethylbenzene		5842	<0.20	50.0	ug/L	50.4	48.0	101	96	80 - 122	4.9
1,3,5-Trimethylbenzene		5842	<0.20	50.0	ug/L	50.6	48.3	101	97	83 - 122	4.7
Xylenes, Total		5842	<0.50	150	ug/L	153	145	102	97	84 - 119	5.4
Surr: Dibromofluoromethane		5842	49.4	50.0	ug/L	49.0	48.9	98	98	88 - 112	0.2
Surr: Toluene-d8		5842	50.2	50.0	ug/L	49.8	49.8	100	100	89 - 112	0.0
Surr: Bromofluorobenzene		5842	50.9	50.0	ug/L	50.0	49.6	100	99	90 - 114	0.8